OXFORD ECONOMICS

THE ECONOMIC IMPACT OF THE AGRI-FOOD SECTOR IN SOUTHEAST ASIA

2022

FIA FOOD INDUSTRY ASIA

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ECONOMIC IMPACT OF AGRI-FOOD SECTOR ON KEY SOUTHEAST ASIAN MARKETS IN 2021

Total impact across all 5 countries

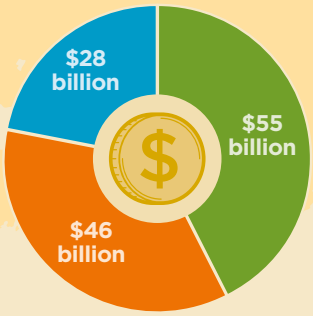
GDP contribution **$808.7 billion**

Employment **126.1 million jobs**

- Agricultural production
- F&B manufacturing
- F&B distribution

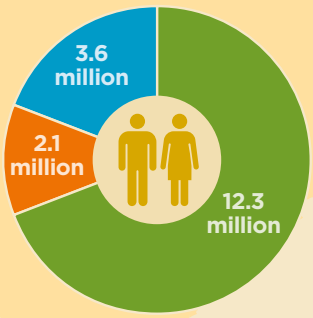
Thailand

GDP contribution **$129 billion**



25% of total GDP.

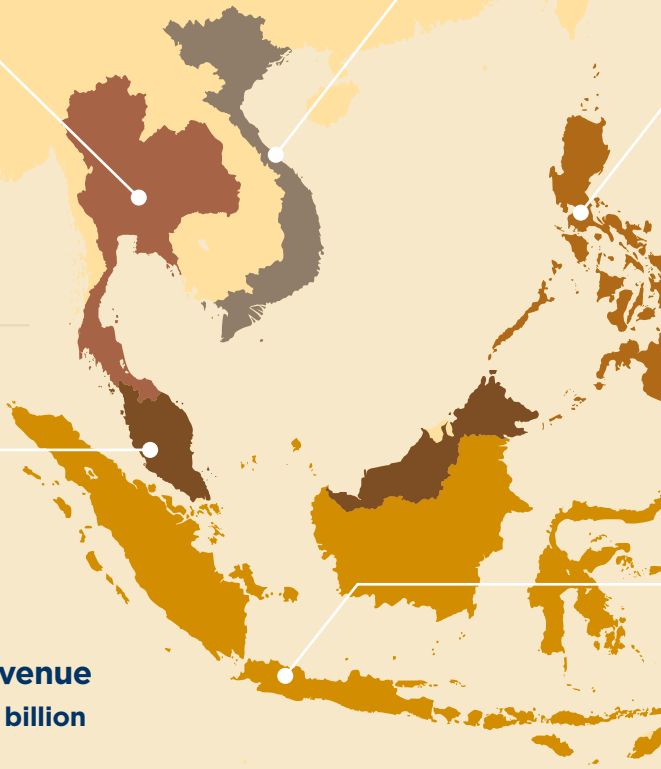
Employment **18.0 million jobs**



48% of total employment.

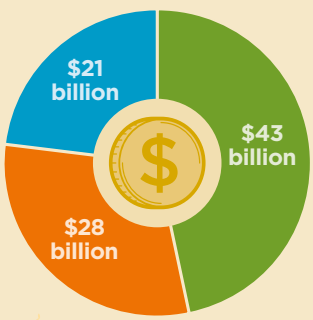
Tax revenue **$22.6 billion**

Trade position **$19.9 billion surplus**



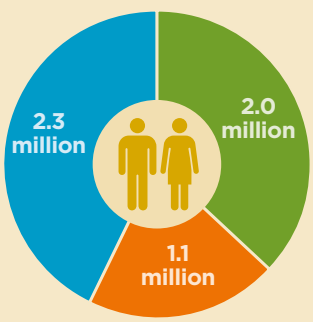
Malaysia

GDP contribution **$92 billion**



25% of total GDP.

Employment **5.4 million jobs**



35% of total employment.

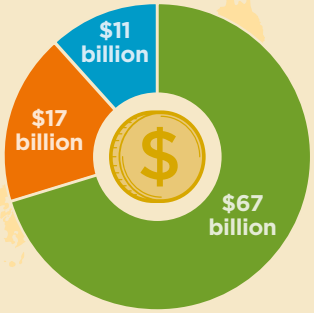
Tax revenue **$8.9 billion**

Trade position **$9.4 billion surplus**

Totals may not sum due to rounding
$ = US dollar throughout this report

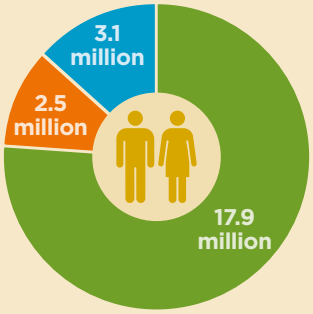
Vietnam

GDP contribution
$95 billion



26% of total GDP.

Employment
23.5 million jobs



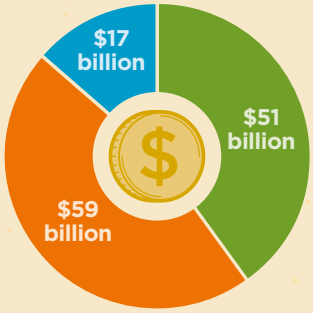
48% of total employment.

Tax revenue
$12.3 billion

Trade position
$4.2 billion surplus

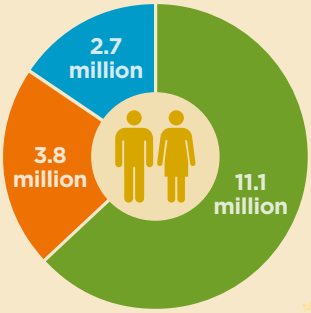
Philippines

GDP contribution
$127 billion



32% of total GDP.

Employment
17.6 million jobs



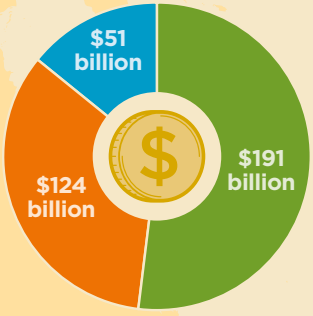
40% of total employment.

Tax revenue
$17.3 billion

Trade position
$7.9 billion deficit

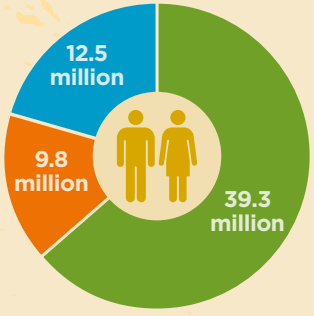
Indonesia

GDP contribution
$366 billion



31% of total GDP.

Employment
61.7 million jobs



47% of total employment.

Tax revenue
$42.0 billion

Trade position
$18.7 billion surplus

EXECUTIVE SUMMARY

US$809 bn

Agri-food sector contribution to 2021 GDP across Indonesia, Malaysia, the Philippines, Thailand, and Vietnam.

The Southeast Asian economy is enjoying an economic revival in 2022 as borders reopen, social distancing measures are ratcheted back, and businesses return to more 'normal' operations in the transition to a post-pandemic environment. Sat at the heart of this regional economy is the agri-food industry, which has played a crucial role in the region's resilience throughout the past two years of the pandemic and is central to its future trajectory, too. The sector not only puts food on the table for the region's enormous population, but also provides income and employment for a large portion of its workforce and a multitude of opportunities to businesses at each stage of the agri-food value chain.

As the industry looks forward, it faces significant risks on the horizon, that threaten its growth. From inflationary pressures to challenging demographics and policy risks, the implications matter not only to the livelihoods of agri-food industry entrepreneurs and employees but—given the size of the sector and its role in supply chains—the wider economy too.

Oxford Economics was commissioned by Food Industry Asia (FIA) to assess the total economic impact in 2021 of the agri-food sectors in five major Southeast Asian economies: Indonesia, Malaysia, the Philippines, Thailand, and Vietnam. In doing so, we unpack the importance of the sector's contribution to the wider Southeast Asian economy, and its future trajectory.

THE AGRI-FOOD SECTOR'S ECONOMIC IMPACT

This study builds on the foundations of our previous collaboration with Food Industry Asia in 2021, in which we redefined the agri-food sector to include three components of the food value chain: agricultural production; food and beverage (F&B) manufacturing; and F&B distribution (including wholesale, retail and hospitality services).

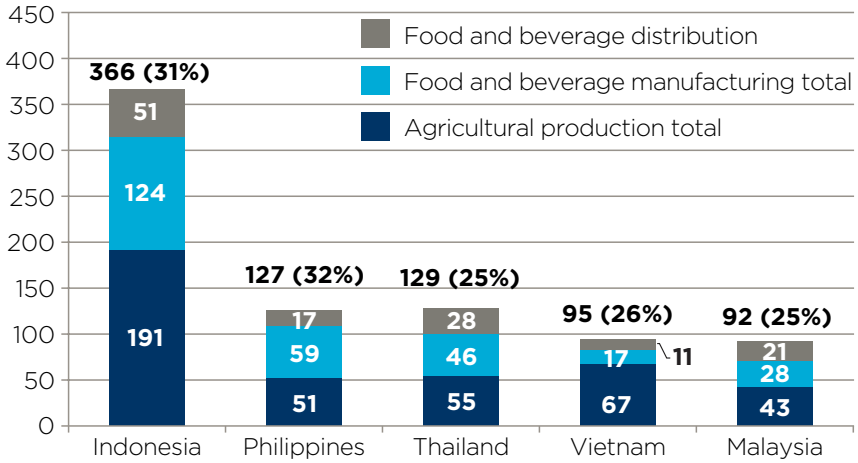
In 2021, the agri-food sector contributed USD 808.7 billion to the five Southeast Asian economies in our study (see Fig 1). This impact is 21% higher, in real terms, than it was in 2015—the first year of our analysis. In addition, the sector is also responsible for USD 104 billion in tax revenues across the five countries, made up mostly of corporate and income taxes.

- In **Indonesia**, the sector contributed USD 366.3 billion to the economy in 2021, equivalent to 31% of GDP.
- In **Malaysia**, it contributed USD 92.0 billion to the economy in 2021, equivalent to 25% of GDP.
- In the **Philippines**, the agri-food sector contributed USD 126.7 billion to the economy in 2021, equivalent to 32% of GDP.

- In **Thailand**, the sector contributed USD 128.6 billion to the economy in 2021, equivalent to 25% of GDP.
- In **Vietnam**, it contributed USD 95.1 billion to the economy in 2021, equivalent to 26% of GDP.

Fig. 1: Contribution of the agri-food sector to GDP, 2021

Billion US$, 2021 prices, equivalent shares of national GDP in parenthesis

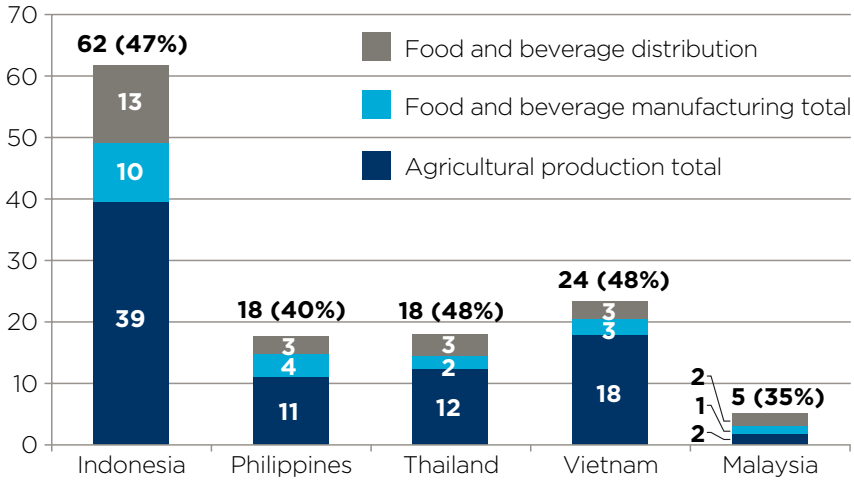


Source: Oxford Economics

As well as contributing this large share of the region's GDP, the agri-food sector plays an unrivalled role in Southeast Asian labour markets. It sustained around 126.8 million jobs in 2021 across the five countries featured in our study, representing more than 45% of the workforce in Indonesia, Thailand and Vietnam (see Fig 2).

Fig. 2: Contribution of the agri-food sector to jobs, 2021

Employment, millions, shares of national employment in brackets



Source: Oxford Economics

126.8 million

Total number of jobs supported by the agri-food sector across the five Southeast Asian economies.

US$104 bn

Tax revenues supported by the agri-food sector in Indonesia, Malaysia, the Philippines, Thailand, and Vietnam.

EVOLUTION OF THE AGRI-FOOD SECTOR AND THE IMPACT OF COVID-19

“Across all Southeast Asian markets, the severe and sudden restrictions to travel and tourism meant that F&B distribution was by far the worst affected part of the agri-food supply chain.”

The Covid-19 pandemic affected the agri-food sector in different ways across Southeast Asian economies, according to the local context and conditions on the ground. In Indonesia and Malaysia, the sector's strong growth rate was slowed considerably in 2020 as a result of physical distancing measures and the severe disruption to travel and tourism. In Thailand and the Philippines, the sector's economic footprint shrank so significantly that year, it has yet to regain its pre-Covid value. In Vietnam, after handling the impacts of Covid adeptly in the first year, the agri-food sector's contribution to GDP stagnated in 2021, under the harsher effects of the Delta variant.

Across all Southeast Asian markets, the severe and sudden restrictions to travel and tourism meant that F&B distribution was by far the worst affected part of the agri-food supply chain. The sector is enjoying a resurgence this year, with the reopening of borders and hospitality venues, but in every country in our study, its economic footprint was still considerably lagging pre-Covid levels, in 2021.

In fact, the resilience of the sector throughout the pandemic and its recovery thereafter have been driven most strongly by agricultural production and F&B manufacturing. In Indonesia, Malaysia, and Vietnam, the GDP contribution of these sectors continued to grow year-on-year throughout the crisis in real USD terms. Only in the Philippines is the economic footprint of the agricultural production and F&B manufacturing still smaller in 2021 than it was in 2019.

“The agri-food sectors of all countries in the study have been characterised by a sustained period of labour productivity growth in recent years.”

The agri-food sectors of all countries in the study have been characterised by a sustained period of labour productivity growth in recent years. Generally speaking, the sector's GDP contribution has grown rapidly against a fairly stable base of employees. This productivity growth was particularly significant in Vietnam – the country with traditionally the lowest GDP footprint per worker in our study, but one that is quickly catching up.

Southeast Asia is particularly vulnerable to the threat of climate change, in particular with regards to agricultural productivity. For this reason, continued investment in new technologies and techniques across the agri-food sector to improve the productivity and sustainability of food production and distribution processes are a key component of the green transition, as recognised by the UN Climate Change Conference in 2021.

OUTLOOK FOR AGRI-FOOD DEMAND IN SOUTHEAST ASIA

Despite a challenging global environment, Oxford Economics forecasts a continued economic recovery in Southeast Asia in the next five years, which will fuel demand for food and beverages. Despite inflationary pressures, we expect real wage growth for every country in our study in 2022 except for Thailand (where wages will outpace inflation from 2023 onwards), thanks to the ongoing economic recovery raising the demand for labour and giving workers extra bargaining power.

“Despite a challenging global environment, Oxford Economics forecasts a continued economic recovery in Southeast Asia in the next five years.”

The pace of the tourism revival (dependent crucially on the continued relaxation of border measures by both source and destination countries) will play a key role in the agri-food sector's performance, as higher spending returns to hospitality services. We forecast the number of tourist visitors to the region to rise from 3.1 million in 2021 to 38.7 million in 2022. Although remaining well short of the 123.8 million tourists entering the region in 2019, this rebound will have ripple effects in Southeast Asia's tourism-centric economies, supporting the broader recovery in domestic demand. The region's longer-term F&B demand outlook is also supported by rising prosperity and living standards at home.

“The region's longer-term F&B demand outlook is also supported by rising prosperity and living standards at home.”

Nevertheless, there are significant risks on the horizon for the agri-food sector, not least four major macroeconomic challenges that could hinder the sector's progress. The first is the impact of rising inflation. The Russia and Ukraine war has driven commodity prices sharply higher across a range of commodity types, at the same time as we have seen increasing measures to restrict food trade. As spending on food and beverages to consume at home accounts for a relatively large portion of household budgets in Southeast Asian countries, average households are highly impacted by this shift in global commodity prices. This is especially true in Thailand, the Philippines and Vietnam, where food accounts for 36-37% of the consumer price index basket of goods and services, although at 19% and 28% respectively food is also a high proportion of total spend in both Indonesia and Malaysia. The second challenge is demographic. The decline in the working age population in some Southeast Asian countries, and the continued allure of the cities for young rural workers mean labour market conditions may deteriorate for the agricultural sector in particular, necessitating new and faster solutions to grow productivity.

The third challenge is the threat of currency instability that has heightened in the past year. This could pose a particular problem for countries that are running large fiscal deficits (specifically the Philippines) or have historically been prone to running trade deficits (specifically Indonesia). These countries may face greater volatility and uncertainty in imported input costs, as well as fluctuating prices for major agricultural exports.

“Governments in the region are focused on balancing their books after the extraordinary fiscal policy measures of the pandemic and rising interest rates.”

Finally, as discussed in our 2021 publication with FIA, *“Fiscal Risks in the food sector in Asia after COVID-19”*, governments in the region are focused on balancing their books after the extraordinary fiscal policy measures of the pandemic and rising interest rates. The agri-food sector therefore faces a potential policy risk from new taxes on food and beverage consumption—particularly in countries where value added tax rates are currently low—or reductions in public spending in countries where agricultural subsidies are currently high. Each of these risks could also hinder the sector’s future recovery and growth.

Overall, whilst the macroeconomic drivers for demand in the agri-food sector look robust across the region, the conditions and emerging risks on the supply-side of the industry could continue to create challenges in the years to come.

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1. INTRODUCTION

The agri-food sector plays a central role in the economies of Southeast Asia, with millions of workers and enterprises catering to local tastes and the daily demands of the population, as well as contributing a large part of the region's Gross Domestic Product (GDP) and jobs. More than two years after the emergence of Covid-19, we are now able to observe with clearer eyes the scale and nature of the disruption the pandemic caused across the Southeast Asian economy. In the agri-food sector, some elements have bounced right back, whilst others have suffered more lasting damage.

Oxford Economics has been commissioned by Food Industry Asia (FIA) to produce this comprehensive analysis of the economic impact of the agri-food sector across five Southeast Asian countries: Indonesia, Malaysia, Thailand, the Philippines, and Vietnam. The study builds on the foundations of our 2021 study of the same name and goes further to analyse the lasting impact of the Covid-19 pandemic and the future outlook. Our goal is to redefine how the agri-food sector is understood in the Southeast Asia region, in terms of the economic footprint it creates all along the length of the food value chain, from farm-to-fork.

By leveraging Oxford Economics' Global Economic Impact Model, as well as in-house industry analysis and macroeconomic forecasting, this report produces an innovative and insightful perspective on the agri-food sector's economic importance and future trajectory.

1.1 THE STRUCTURE OF THIS REPORT

The report is structured to provide an overarching view on the agri-food sector's economic contribution across Southeast Asia and the challenges it faces (Chapter 2), as well as providing country-level deep-dives into five large Southeast Asian markets (Chapters 3 to 7).

After analysing the sector's economic footprint, we assess the macroeconomic outlook for demand in the agri-food sector in the region and the challenges this represents (Chapter 8).

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2. ESTIMATING THE AGRI-FOOD SECTOR'S ECONOMIC IMPACT

The supply of food and non-alcoholic beverages in Southeast Asia relies upon a diverse network of activities, covering the production, processing, distribution, and sale of food and beverage products. In this study, we consider the agri-food sector to encompass all of these activities, representing the food value chain from farm to fork. In this respect, the sector is not only the source of essential goods to the Southeast Asian population, but also the backbone to the region's economies.

In this chapter, we outline the framework we have used to analyse the agri-food sector and quantify its economic impact in five Southeast Asian countries: Indonesia, Malaysia, Thailand, the Philippines, and Vietnam. We also present the headline findings of our analysis at the regional level.

2.1 HOW WE FRAME OUR ANALYSIS

We define the agri-food sector to include three principal components: agricultural production, food and beverage (F&B) manufacturing; and F&B distribution.

To quantify the contribution the sector makes to the economy, we focus primarily on its "direct economic impact". This refers to the activities of enterprises directly engaged in one of those three components. We augment this analysis with an assessment of the "indirect economic impact" that flows from each component. This refers to activity within their supply chains. Finally, we assess a third tier of impact, the "induced economic impact". This refers to the activity supported by employees in the agri-food sector and its supply chain as they spend their wages. More detail on these three channels of impact and how they are estimated is provided in Box 1.

Our analysis is focused primarily on the size of the agri-food sector's economic footprint in 2021—the latest year for which complete economic statistics are available—and we evaluate the historical trend from 2015-2020. This provides us with a clear picture of the state of the agri-food sector in each country prior to the impact of the Covid-19 pandemic, and its performance since.

Component 1: Agricultural production

The Southeast Asia region is home to some of the world's major agriculture producers. In each of the five economies featured in this study, agricultural production (including both the agriculture and fishing sectors) makes up a significant proportion of the Gross Domestic Product (GDP). Rice accounts for the largest share of agricultural output, by gross production value, followed by other key commodities such as coffee, cocoa, fruits, vegetables, and maize. Livestock and poultry farming also play a critical role in the production mix. The region is characterised by large coastal or island-based geographies, and thus also supports large fishing communities, with sizeable seafood production sectors.

Agricultural production also naturally accounts for a huge share of Southeast Asian employment. Despite the sector's moderate wages, agricultural workers typically spend a high proportion of their earnings on local goods and services, thereby creating a significant spending footprint, which manifests itself as a large "induced economic impact" in our analytical framework.

Component 2: Food and beverage manufacturing

The second major component of the region's agri-food value chain is food and beverage manufacturing, which includes production, processing, and packaging. For the purpose of this study, alcoholic beverages are excluded from this category. As of 2021, an estimated 19.3 million workers were employed in F&B manufacturing across Indonesia, Thailand, the Philippines, Vietnam, and Malaysia. Each of these workers spends some portion of their income in their local economy, which stimulates a wider induced economic impact.

Component 3: Food and beverage distribution

The third and final stage of the agri-food value chain is the distribution of food and beverage products to consumers. This involves the wholesale and retail activities linked to distribution, as well as activities in the hospitality sector, such as events catering and restaurants. We estimate that across the five countries studied, 24.0 million jobs were sustained by F&B distribution activities.

2.2 THE ECONOMIC IMPACT OF THE AGRI-FOOD SECTOR IN SOUTHEAST ASIA

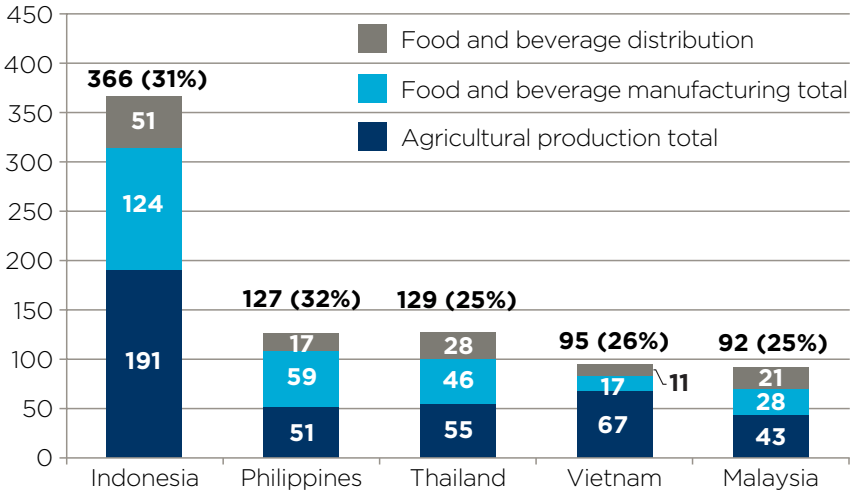
The total economic impact of the agri-food sector can only be fully understood in aggregate, across each component of the value chain and counting its direct, indirect, and induced impacts.

Our analysis suggests this was worth a total of USD 808.7 billion in 2021 across the five Southeast Asian countries in our study. The sector's economic footprint has grown 21% *in real terms* since 2015, when it was worth approximately USD 667.2 billion.

This broad spectrum of economic activity occupies a large share of the region's workforce. In 2021, the five Southeast Asian countries featured in our study employed 126.8 million workers across the agri-food sector. This figure has been largely stable over the years, indicating that improvements in labour productivity across the sector are playing a major role in driving the sector's growth.

Fig. 3: Contribution of the agri-food sector to GDP

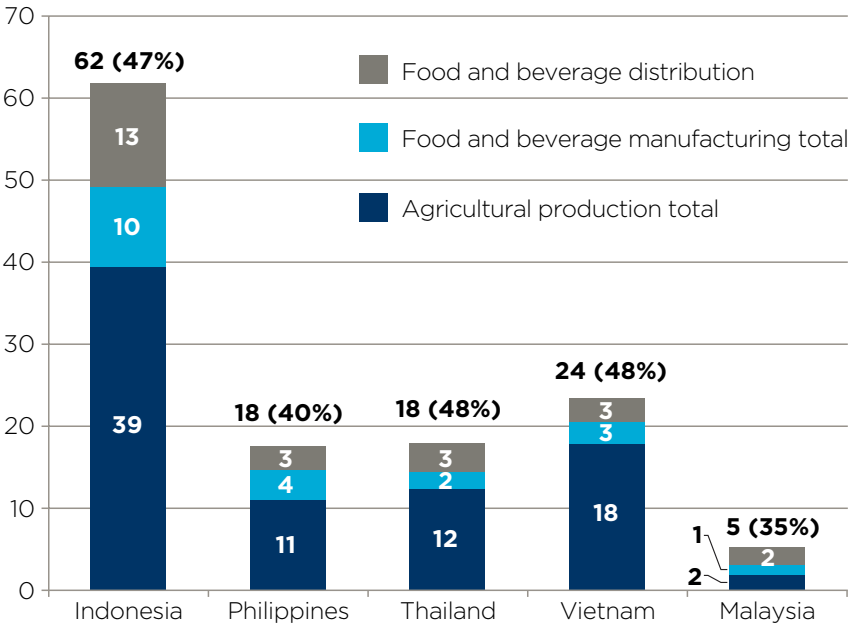
Billion US$, 2021 prices, equivalent shares of national GDP in parenthesis



Source: Oxford Economics

Fig. 4: Contribution of the agri-food sector to jobs

Employment, millions, shares of national employment in brackets



Source: Oxford Economics

This considerable economic footprint places the agri-food sector at the heart of the Southeast Asian economy. In the five countries we analysed, it accounted for between 25% and 32% of national GDP in 2021. Its role as an employer is even more crucial, accounting for between 35% and 48% of total national employment across the five countries.

Moreover, the agri-food sector is also responsible for a sizeable share of the region's total tax revenues, made up mostly of corporate and income taxes accrued across the various tiers of economic activity the sector supports.

According to our estimates, the industry generated a total of USD 104.2 billion in taxes in 2021, representing approximately 28.0% of the total tax take in these economies as a whole.

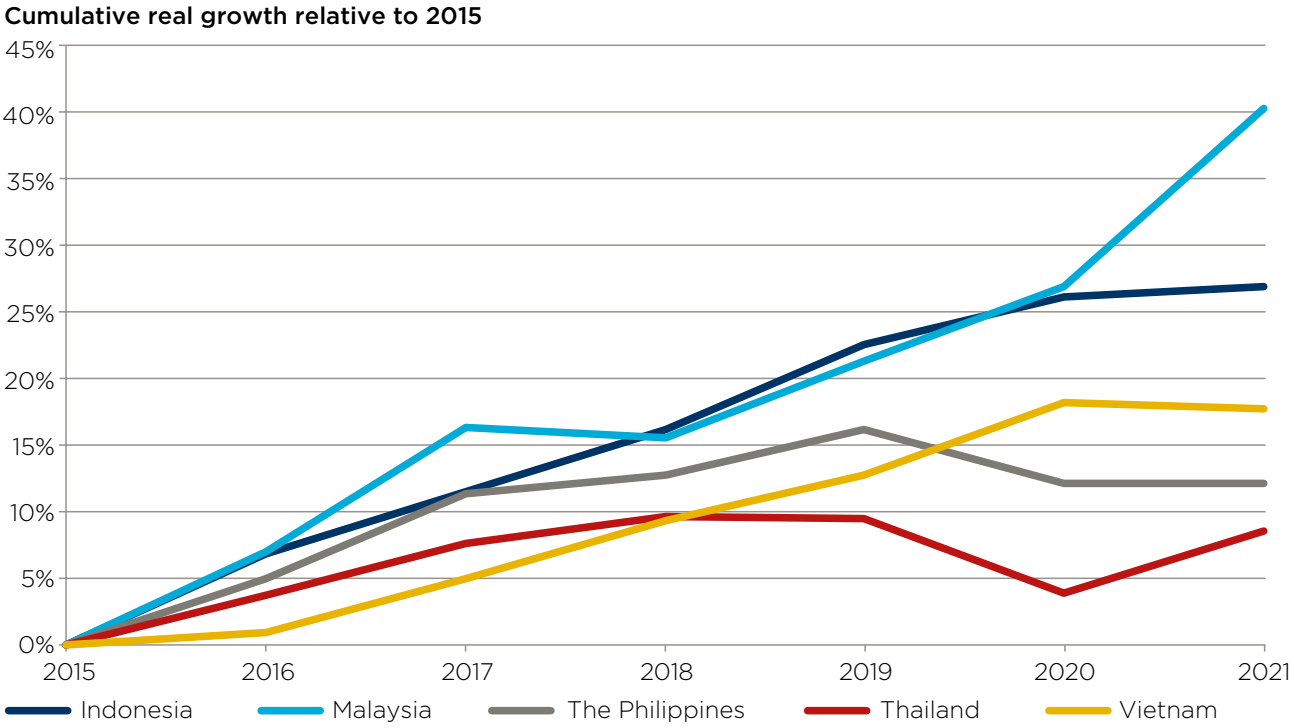
The agri-food sector across Southeast Asia has grown robustly, with a contribution to GDP that is higher in 2021 than in 2015 for each country, despite the negative impacts of the COVID-19 pandemic (Fig. 5). On the back of growing demand and rising labour productivity, we saw steady growth between 2015 and 2019 in all countries.

However, fortunes have varied through the pandemic. Our research shows that the GDP footprint of the sector grew in real terms in three countries (Malaysia, Indonesia and Vietnam). Overall, Malaysia's economic footprint has seen the most expansion – amplified somewhat by price inflation in 2021, which has increased the value of a given quantity of outputs. Thailand has fared the worst, hampered by weak productivity growth prior to the pandemic and the most severe impact in the region from the loss of tourism in 2020.

The continued growth in labour productivity in recent years is promising in light of the challenges posed to the agri-food sector from climate change. Recent research published as part of the UN Climate Change Conference, ahead of the COP26 climate summit in 2021, showed that the ASEAN agricultural sector is particularly vulnerable to climate change. As a region, its population is more likely to suffer the consequences of changing weather patterns and rising sea levels than in other parts of the world.[1] Productivity growth will be crucial to achieving a more sustainable agri-food system moving into this era.

[1] https://www.openaccessgovernment.org/asean-climate-change/123591/

Fig. 5: Growth in the real contribution to GDP of the agri-food sector across the five economies, 2015-2021



Source: Oxford Economics

In addition to this, the agri-food sector has a critical role to play in making the region's natural environment more sustainable. In one COP26 commitment, governments and companies focussed their attention on the need to protect nature and accelerate the shift towards sustainable agriculture and land-use practices.[2] These commitments will require the Southeast Asian agri-food sector stakeholders to invest in new practices and technologies urgently in the years ahead.

In the following chapters of this report, we explore how the agri-food sector's economic impact manifests itself in each of the five Southeast Asian countries in scope, how the sector performed during the Covid-19 pandemic, and what the future holds for the sector in the next three years.

[2] https://ukcop26.org/nations-and-businesses-commit-to-create-sustainable-agriculture-and-land-use/

BOX 1: OUR APPROACH TO ECONOMIC IMPACT ASSESSMENT

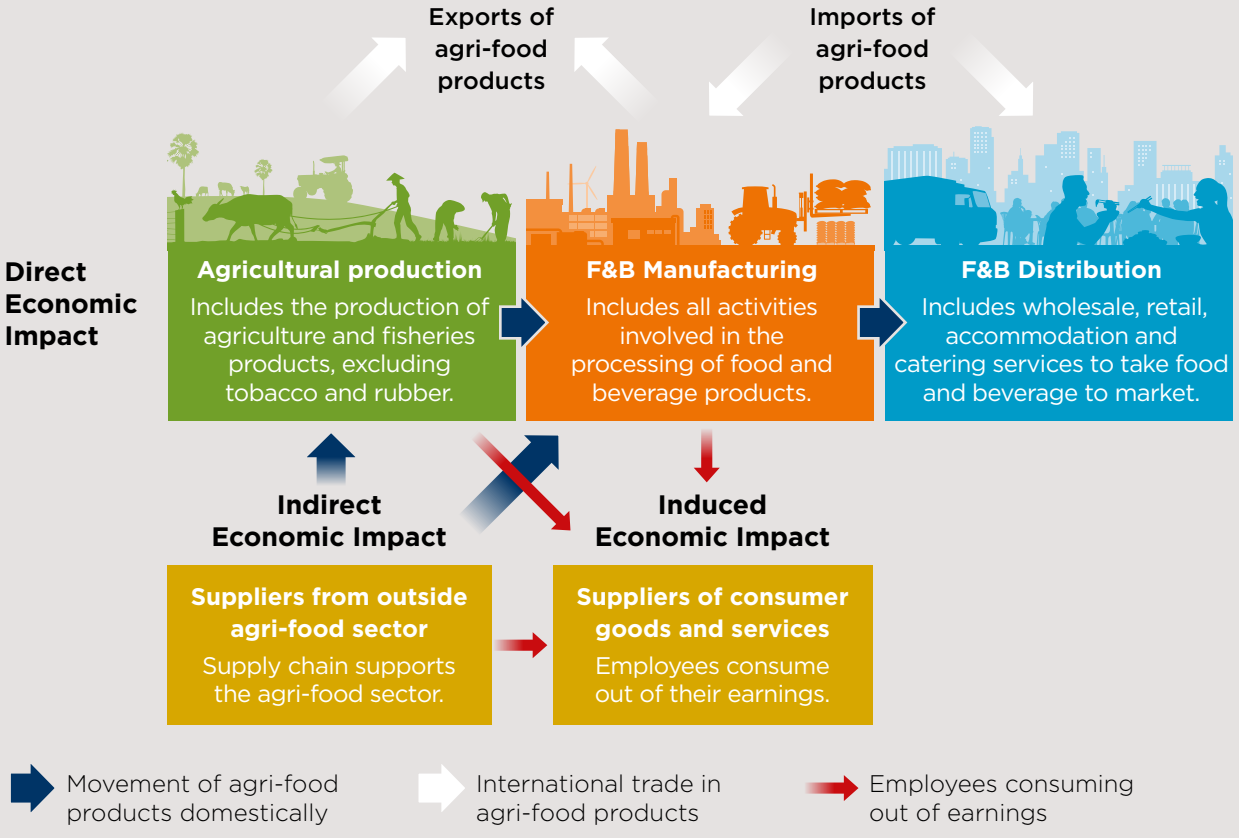
In this report, we use a bespoke economic impact modelling framework to analyse the contribution the agri-food sector makes to the economies of Indonesia, Malaysia, Thailand, the Philippines, and Vietnam. Our assessment captures three channels of impact.

Firstly, we assess **the direct economic impact** of the businesses and workers directly involved in the agri-food sector itself—that includes agricultural production, F&B manufacturing, and F&B distribution,

For the agricultural production and F&B manufacturing components, we also capture two further channels of impact, as summarised in Fig. 2.

- **The indirect economic impact** refers to the economic activity stimulated along the agri-food sector's non-food supply chain, from procurement spending.
- **The induced economic impact** refers to the economic activity that flows from the payment of wages in the agri-food sector and the businesses in its non-food supply chain. Those wages are spent in the local economy, for example in retail and leisure outlets, generating profits and wages for other businesses, which in turn stimulate further spending in their own supply chains and amongst their own employees.

Fig. 6. The contribution the agri-food makes to the Southeast Asian economy



The total economic impact of the agri-food sector encompasses all of these impacts, and we present the impact in three ways:

- **Gross value added (GVA) contribution to Gross Domestic Product (GDP).** This is the value of the output produced by a firm minus its expenditure on inputs (goods and services) that are used up in production. Aggregated across all economic operators in the economy, this forms GDP (plus production taxes and subsidies), which is the most widely recognised measure of total economic output.
- **Employment.** This is measured on a headcount basis to facilitate comparisons with national statistical agencies' employment data. It therefore includes anyone who is paid wages regardless of the length of their working week or whether they work all year round. Those who are paid as part of a contract for the provision of services will be considered as part of the supply chain, for the purposes of this study.
- **Tax receipts.** This is an estimate of all income and corporation tax revenues generated by firms and employees that form part of the economic footprint.

Our results are presented on a gross basis. They therefore ignore any displacement of activity from other uses of the land, for example. They do not consider what those resources currently used by the agri-food sector, or by their suppliers, could produce in the absence of the sector's activity.

We present our results in real terms, using 2021 price levels and a 2021 USD exchange rate, for the purposes of consistent international comparison. When adjusting prices to real terms, we use official price deflators based on economy wide inflation trends. We are cognisant that inflation rates are not uniform across all sectors of the economy and that if we were to use sector-specific price deflators—especially for the agriculture sector, which is characterised by more volatile prices than the weighted national average—the implied 2021 value of the agri-food sector's economic footprint would look different. Rising prices mean the value of the agriculture sector's economic impact would rise, even if output remains static. Nevertheless, in our judgement, the soundest approach to normalising price levels is to use the national, not sectoral price deflator. This is because our analysis is designed to capture the ways in which the value that the agri-food sector generates reaches across sectors and permeates through the whole economy. Sector-specific price indices would skew this picture. For the purposes of transparency, when we observe trends in the volume of agricultural output that contradict our analysis of the value of economic output in this study, we caveat our findings appropriately.

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THE AGRI-FOOD SECTOR IN INDONESIA

TOTAL ECONOMIC IMPACT

Agricultural production · F&B manufacturing · F&B distribution

A total contribution to GDP worth $366.3 billion

$191.3bn $124.0bn $51.1bn

The agriculture industry represents **more than three fifths** of the sector's contribution to GDP.

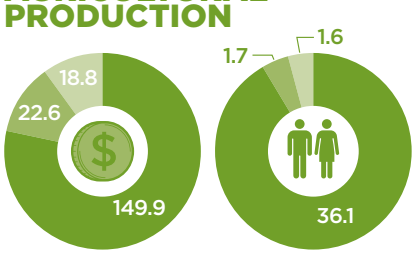
A total employment footprint of 61.7 million

39.3mn 9.8mn 12.5mn

The Indonesian agri-food sector is huge, **employing nearly half of the national workforce.**

FROM FARM TO FORK

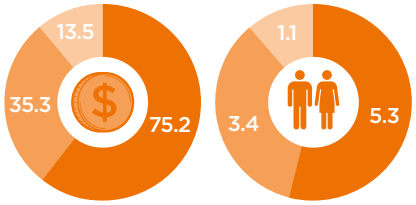
AGRICULTURAL PRODUCTION



$191.3 billion **39.3 million**

Direct · Indirect · Induced

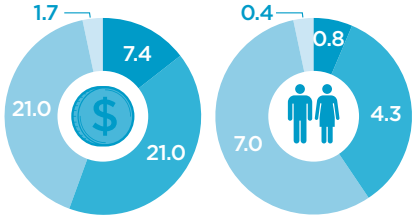
FOOD & BEVERAGE MANUFACTURING



$124.0 billion **9.8 million**

Direct · Indirect · Induced

FOOD & BEVERAGE DISTRIBUTION



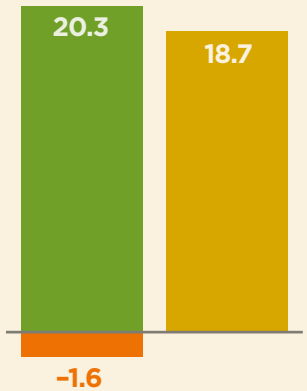
$51.1 billion **12.5 million**

Wholesale · Retail · Catering · Accommodation

TRADE SURPLUS

Indonesia sustains a large agri-food trade surplus, driven by exports of agricultural products.

Net exports in 2021 (US$, billion)

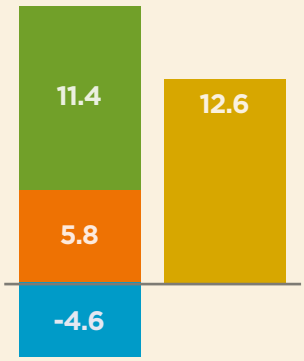


Agricultural products · Processed F&B products · Total

COVID-19 IMPACT

The agri-food sector's contribution to GDP grew in 2021. However, the COVID-19 pandemic meant that F&B distribution contracted.

Change in GDP contribution (US$, billion)



Agricultural production · F&B manufacturing · F&B distribution · Total

Totals may not sum due to rounding. $ = US dollar.

3. THE AGRI-FOOD SECTOR'S IMPACT IN INDONESIA

Despite the impacts of the Covid-19 pandemic, Indonesia's agri-food sector has continued to grow consistently, such that 2021 represented its largest ever contribution to GDP, measured in real US dollar terms. The country's agri-food sector is dominated by agricultural production, but with one of Southeast Asia's largest domestic consumer markets, it is also host to vibrant food and beverage manufacturing and distribution sectors, driven by high levels of consumer demand.

In this chapter, we map out the economic footprint of the agri-food sector in Indonesia and its different components. We then go on to analyse its trajectory over recent years and the impact the Covid-19 pandemic had on the sector's performance, before considering Indonesia's international trade position in agri-food products.

All values are quoted in US dollars, adjusted to keep prices and exchange rates constant at 2021 levels. This enables comparability across the years and the five markets in this report. As is detailed in Box 1, we adjust prices based on economy-wide, rather than sector-specific, inflation indices because our analysis is designed to capture the agri-food sector's impact throughout the whole economy.

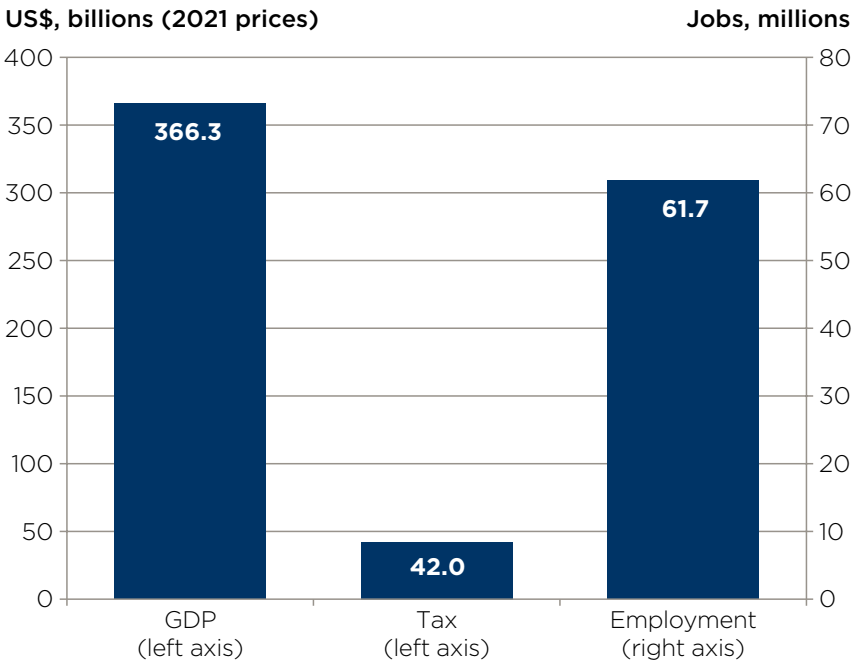
3.1 THE TOTAL ECONOMIC IMPACT OF THE AGRI-FOOD SECTOR[3]

Indonesia's agri-food sector contributed USD 366.3 billion to national GDP in 2021. In real terms, this marked a 26.8% increase from the agri-food sector's 2015 impact, representing an average annual growth rate of 4.0% between 2015 to 2021. In total, the sector's contribution to the economy, equivalent to nearly 31% of Indonesian GDP in 2021.

The sector supported a total of 61.7 million jobs in 2021, equivalent to 47% of the 132.0 million jobs in the entire Indonesian economy that year. The agri-food sector also generates tax revenues for the Indonesian government, primarily in the form of corporation and income taxes. In 2021, the sector generated a total of nearly USD 42.0 billion in tax revenues, through its direct, indirect, and induced tiers of impact.

The sector's contribution to GDP is worth an average of USD 5,900 per worker employed in its economic footprint. This registers as the second lowest productivity level of any country in this study. It is consistent with the predominance of agriculture in the Indonesian agri-food sector, which is generally the least labour productive component, and the relatively low level of labour productivity in the wider economy.

Fig. 7: Total economic contribution of agri-food sector in Indonesia, 2021



Source: Oxford Economics

[3] Please note that our historical estimates for the GDP contribution of Indonesian agriculture sector have changed since our previous publication: "The Economic Impact of the Agri-Food Sector (2021)", due to underlying changes.

3.2 THE AGRI-FOOD SECTOR IN DETAIL

Our analysis focuses on the economic impact of three components of the agri-food industry: agricultural production, F&B manufacturing, and F&B distribution. Of these, agricultural production makes up the lion's share of its impact, accounting for 52% of the sector's GDP contribution, as well as 64% of its jobs, once supply chain and induced consumer spending impacts are included. This is the second-highest agricultural share of the overall footprint in the five countries in the study. F&B manufacturing accounts for roughly 34% of the total GDP impact, and F&B distribution the remaining share.

3.2.1 Agricultural production

Historically, agricultural production has always accounted for the largest share of the agri-food sector in Indonesia. It made a contribution to Indonesia's GDP worth USD 149.9 billion from direct channels alone in 2021. This figure was further augmented by an indirect impact of USD 22.6 billion via its supply chain, and an induced impact of USD 18.8 billion through consumer spending derived from agricultural workers.

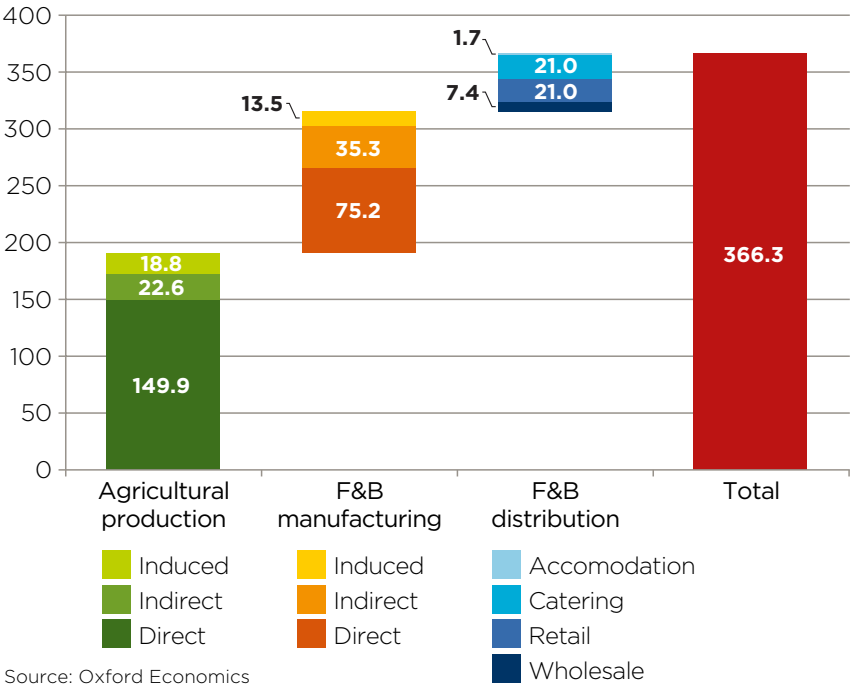
Agricultural production supported 36.1 million jobs directly in 2021, and 3.3 million more jobs via the indirect and induced channels. This is nearly two thirds of the overall employment footprint of the sector, illustrating the importance of agriculture to supporting livelihoods. As a source of public revenues, agricultural production generated USD 14.5 billion in tax payments.

3.2.2 Food and beverage manufacturing

Food and beverage manufacturing is the second largest component of the Indonesian agri-food sector. In 2021, it generated a USD 124.0 billion contribution to domestic GDP. This included a direct contribution from food and beverage manufacturers of USD 75.2 billion, as well as USD 35.3 billion and USD 13.5 billion via indirect and induced impacts respectively. Overall, F&B manufacturing represented 34% of the agri-food sector's total economic impact in 2021.

Fig. 8: Agri-food industry contribution to Indonesia's GDP, by component, 2021

US$, billions (2021 prices)



Source: Oxford Economics

F&B manufacturing also contributed significantly to Indonesia's workforce, sustaining total of 9.8 million jobs in 2021, of which 5.3 million were sustained through its direct activities. Labour productivity in F&B manufacturing is the highest of any component of the agri-food sector, with a contribution to GDP per worker twice as high as the remainder of the agri-food sector. In addition, it generated USD 21.5 billion in tax revenues that year.

3.2.3 Food and beverage distribution

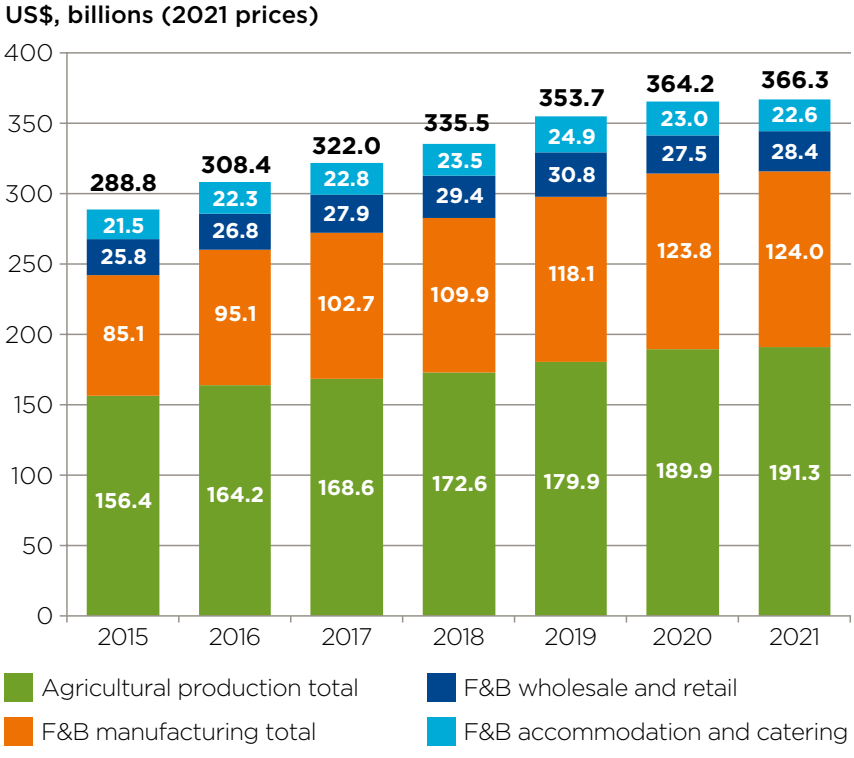
F&B distribution is the smallest component of Indonesia's agri-food sector, contributing approximately USD 51.1 billion to national GDP in 2021. This component includes F&B wholesale and retail activities, as well as sale of food and non-alcoholic beverages by the hospitality industry (e.g., by hotels, restaurants, and catering businesses).

The largest share of the F&B distribution sector's economic footprint in Indonesia came via catering and retail activities. They each contributed USD 21.0 billion to 2021 GDP, together representing 80% of the total impact for F&B distribution. This component of the agri-food sector also sustained 12.5 million jobs in 2021, of which 4.3 million positions came in retail and a further 7.0 million in catering. Additionally, F&B distribution generated USD 5.9 billion in tax revenues for the Indonesian government that year.

3.3 THE EVOLUTION OF THE INDONESIAN AGRI-FOOD SECTOR

As the Covid-19 pandemic took hold in 2020, with tourism drying up, restricted movement, and disruptions to consumer spending, the agri-food sector faced unprecedented challenges. Consequently, the sector's growth slowed from an average of 5% per year in Indonesia between 2015-2019, to 3% in 2020, and 1% in 2021. The sector's rapid growth trajectory leading up to the pandemic meant that the agri-food sector's economic footprint in 2021 still outsized its 2015 footprint by USD 77.5 billion, in real USD terms.

Fig. 9: Change in GDP contribution by Indonesia's agri-food sector, by component, 2015-2021

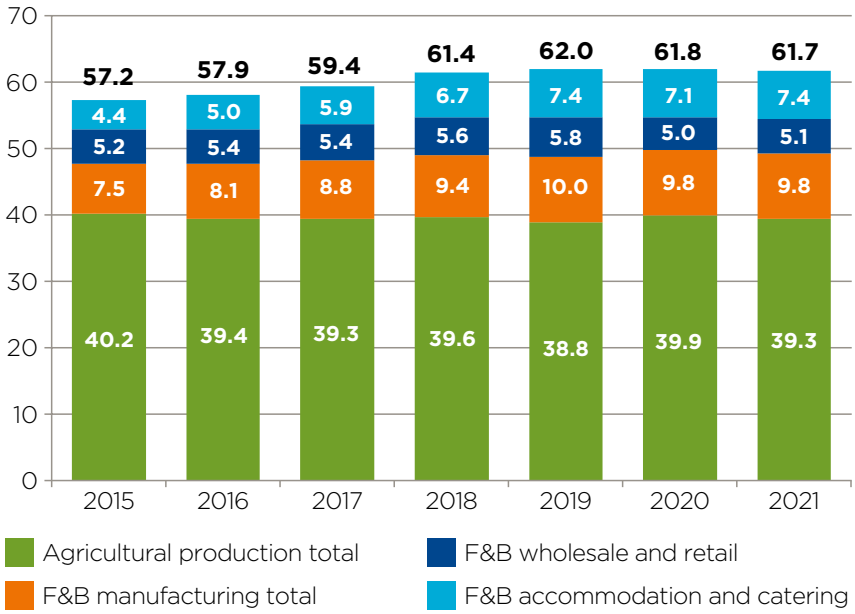


Source: Oxford Economics

The negative impact of Covid-19 on the agri-food sector was even more apparent when employment is taken into account. Employment in the agri-food sector consistently rose by approximately 2% every year between 2015 to 2019. However, this trend ended in 2020, with the number of jobs sustained by the sector falling for the first time since before 2015, followed by a further contraction in 2021. Despite this, the strong growth in employment prior to the pandemic means that 4.5 million more people were employed in the agri-food sector in 2021 than in 2015.

The growth in the number of people employed in the Indonesian agri-food sector has been slower than the growth in its GDP footprint. This means that real-terms productivity, measured in terms of the GDP footprint per worker, was 18% higher in real terms in 2021 than 2015. This places Indonesia third of the five countries in the study in terms of productivity growth.

Fig. 10: Change in employment footprint of Indonesia's agri-food sector, by component, 2015-2021



Source: Oxford Economics

3.3.1 Agricultural production

Despite the disruptions caused by the Covid-19 pandemic, the agriculture sector in Indonesia has remained largely robust. The total economic impact of agricultural production was USD 179.9 billion in 2019, growing to USD 189.9 billion in 2020 and USD 191.3 billion in 2021. This meant that the sector's economic footprint maintained a 4% average annual growth rate from 2015-2020. Most recently in 2021, however, the sector's year-on-year growth slowed to 1%, indicating that the negative impacts of the pandemic were delayed in agricultural production, compared to the other components of Indonesia's agri-food sector.

The sector benefited from the Indonesian government's aggressive policies to increase production during the pandemic, including the development of a 165,000-hectare food estate in Central Kalimantan, grants for farming materials and tools; and unconditional cash transfers to 2.7 million farmers[4]. In addition, agricultural revenues were bolstered in 2020 by a 14% increase in minimum rice output prices, which are likely to have inflated the value of agricultural outputs relative to volume.

[4] OECD, Agricultural Policy Monitoring and Evaluation 2021: Addressing the Challenges Facing Food Systems, 14. Indonesia

Employment generated by agricultural production in Indonesia has fluctuated over recent years, albeit not surpassing its 2015-peak of 40.2 million. The divergence in GDP and employment trends demonstrates consistent productivity growth over this time, something that is highlighted by the OECD as a key reason for growth in Indonesia's agricultural production. From 2007 to 2016, total factor productivity (TFP) grew by 2% annually[5]. More recently, the Indonesian government has focused on policies targeted at modernising Indonesia's agriculture in 2020, including programmes for smart farming, greenhouses for producing crops off-season, and rural infrastructure.

3.3.2 Food and beverage manufacturing

The food and beverage manufacturing sector had been enjoying a rapid growth trajectory in the years preceding the COVID-19 pandemic. The sector's economic contribution increased from USD 85.1 billion in 2015 to USD 118.1 billion in 2019, with an average annual growth of 9%. Year-on-year growth remained relatively strong in 2020 at 5%, however in 2021 it slowed — almost to a standstill —growing by only 0.1% to USD 124.0 billion.

Despite this slowdown, this component of the sector's contribution to GDP was 46% larger in 2021 than 2015, more than double the growth seen in any other component.

On the employment front, the pandemic's impact was felt slightly earlier by Indonesia's F&B manufacturing workforce. The sector consistently grew its workforce every year from 2015 to 2019, rising from 7.5 million to 10 million jobs in the time period. This total fell to 9.8 million jobs in 2020 and 2021. Overall, labour productivity has risen since 2015, however is has done so more gradually than other components of the industry, especially agriculture.

3.3.3 Food and beverage distribution

In-keeping with a global trend, F&B distribution was one of the sectors hardest hit by the pandemic in Indonesia. The economic footprint of wholesale and retail activities dropped from USD 30.8 billion in 2019 to USD 27.5 billion in 2020, before recovering to contribute USD 28.4 billion in 2021. Accommodation and catering were also affected by the pandemic and the subsequent policy response of social distancing measures in 2020.[6] The economic footprint of the F&B distribution sector shrank from USD 24.9 billion in 2019 to USD 23 billion in 2020, and even further to USD 22.6 billion in 2021.

Despite this contraction, the economic impact of accommodation and catering was still larger in 2021 than in 2015, the first year of our analysis.

Indonesia's workforce was similarly affected by the pandemic's upheaval. Employment from F&B distribution activities consistently increased from 2015 to 2019, reaching 13.2 million jobs in 2019. This fell quite sharply with the first wave of the pandemic in 2020, to 12.1 million jobs, but bounced back in 2021, to 12.5 million jobs. The bulk of this improvement came from renewed growth in the accommodations and catering sector in 2021, likely due to relaxed COVID restrictions. Again, this component of the agri-food sector boasts a significantly larger economic footprint than it did in 2015.

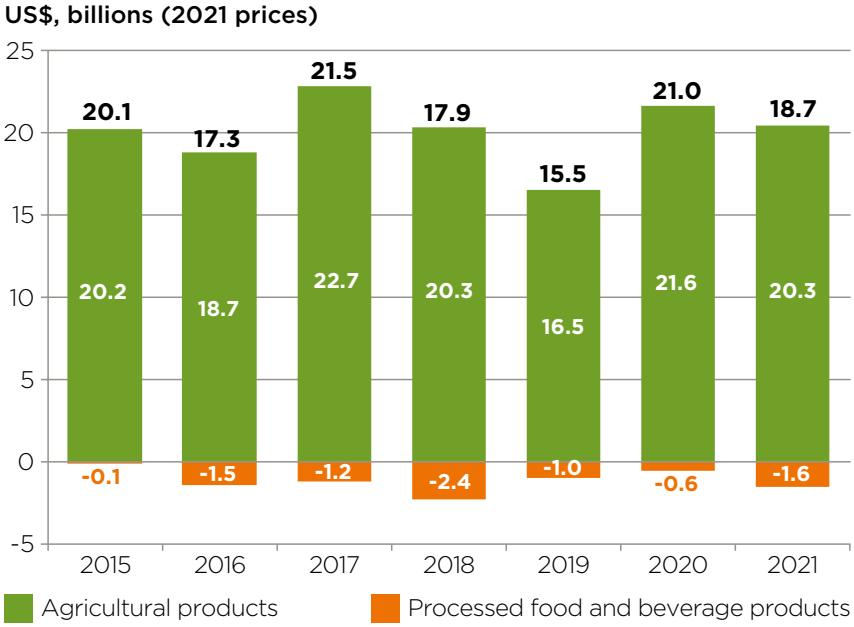
[5] OECD, Agricultural Policy Monitoring and Evaluation 2021: Addressing the Challenges Facing Food Systems, 14. Indonesia
[6] Strict measures were placed on dining establishments in 2020, as part of the Pemberlakuan Pembatasan Kegiatan Masyarakat or PPKM, and Pembatasan Sosial Berskala Besar or *PSBB programmes.*

3.4 TRADE IN AGRI-FOOD PRODUCTS

Indonesia retained its strong trade surplus in agri-food products in 2021, with net exports worth USD 18.7 billion. Total agri-food exports were worth over twice as much as imports at USD 36.2 billion and USD 17.5 billion respectively. The key driver behind this positive trade balance was agricultural production, with exports worth USD 28.0 billion and a trade surplus worth USD 20.3 billion. Indonesia runs a small trade deficit in processed F&B products, however this is dwarfed by the large net surplus in agricultural products.

This agri-food trade surplus has fluctuated in size over the past seven years, dipping to its lowest value of USD 15.5bn in 2019, but has remained robustly positive and is an important generator of foreign exchange revenues.

Fig. 11: Net exports of primary and processed food and non-alcoholic beverages, Indonesia, 2015-2021[7]



Source: Oxford Economics

[7] Due to COMTRADE data not being released for all countries at the time of writing, 2021 values are estimated based on available data for trade of broader agricultural and food products.

Space_Cat/Shutterstock.com

THE AGRI-FOOD SECTOR IN MALAYSIA

TOTAL ECONOMIC IMPACT

Agricultural production · F&B manufacturing · F&B distribution

A total contribution to GDP worth $92.0 billion

$42.9 bn · $27.6 bn · $21.5 bn

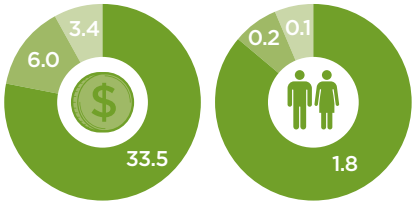
A total employment footprint of 5.4 million

2.0 mn · 1.1 mn · 2.3 mn

The agri-food sector is highly productive, contributing significantly more to GDP per worker on average than any of the other study countries. It's more developed economy drives significant value in F&B distribution activities.

FROM FARM TO FORK

AGRICULTURAL PRODUCTION



$42.9 billion · 2.0 million

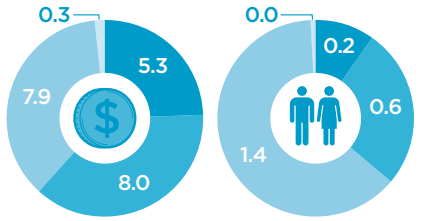
Direct · Indirect · Induced

FOOD & BEVERAGE MANUFACTURING

$27.6 billion · 1.1 million

Direct · Indirect · Induced

FOOD & BEVERAGE DISTRIBUTION



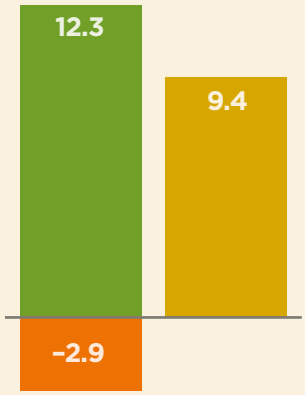
$21.5 billion · 2.3 million

Wholesale · Retail · Catering · Accommodation

TRADE SURPLUS

Malaysia has a strong agri-food trade surplus, driven by its large exports of agricultural products

Net exports in 2021 (US$, billion)

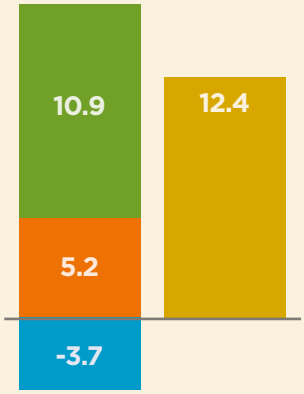


Agricultural products · Processed F&B products · Total

COVID-19 IMPACT

Increasing food prices mean that the value of the sector's output has risen significantly over the pandemic.

Change in GDP contribution (US$, billion)



Agricultural production · F&B manufacturing · F&B distribution · Total

Totals may not sum due to rounding. $ = US dollar.

4. THE AGRI-FOOD SECTOR'S IMPACT IN MALAYSIA

The agri-food sector plays a major role in the Malaysian economy, providing jobs, tax revenues and food security to the nation. This is underpinned by a strong agricultural sector, which is a net exporter of food products. As one of the most economically developed countries in Southeast Asia, Malaysia's strong consumer base also drives relatively high levels of demand in the restaurants and retail outlets of the F&B distribution sector. High levels of labour productivity in key sectors such as agriculture mean the agri-food sector does not dominate the domestic workforce as much as in other Southeast Asian economies, instead freeing up workers to add value in other parts of the economy.

In this chapter, we map out the economic footprint of the agri-food sector in Malaysia and its different components. We then go on to analyse its trajectory over recent years and the impact the Covid-19 pandemic had on the sector's performance, before considering Malaysia's international trade position in agri-food products.

All values are quoted in US dollars, adjusted to keep prices and exchange rates constant at 2021 levels. This enables comparability across the years and the five markets in this report. As is detailed in Box 1, we adjust prices based on economy-wide, rather than sector-specific inflation indices, because our analysis is designed to capture the agri-food sector's impact throughout the whole economy.

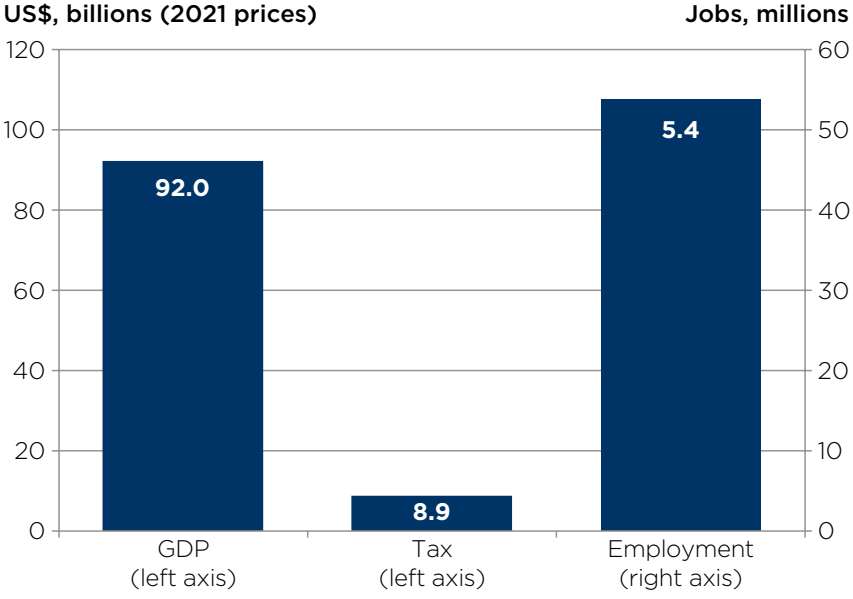
4.1 THE TOTAL ECONOMIC IMPACT OF THE AGRI-FOOD SECTOR

Malaysia's agri-food sector contributed a total of USD 92.0 billion to domestic GDP in 2021. This represented more than one quarter of the domestic economy (25%) and meant that the sector had grown significantly in value relative to the previous year.

This economic activity was responsible for employing a total of 5.4 million people in 2021, representing 35% of all jobs in the economy. Furthermore, the tax revenues that the sector's activities supported were worth a total of USD 8.9 billion, primarily through income and corporation tax.

Malaysia boasts a highly productive agri-food sector when compared to other countries in our study. In 2021, the sector contributed over USD 17,000 to GDP per worker in its economic footprint, more than double that of any other country in the study.

Fig. 12: Total economic contribution of agri-food sector in Malaysia, 2021



Source: Oxford Economics

4.2 THE AGRI-FOOD SECTOR IN DETAIL

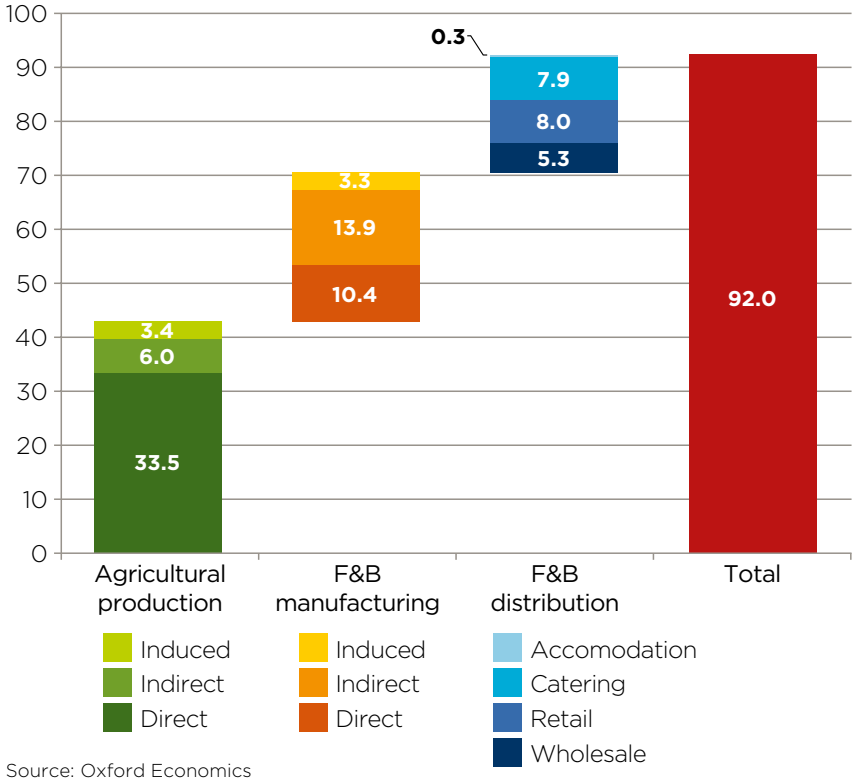
The economic contribution of the agri-food sector consists of three main components: agricultural production, F&B manufacturing, and F&B distribution. Each of these components made valuable contributions to Malaysia's diversified economy. The largest came through agricultural production, which constituted 47% of the whole sector's contribution to GDP once its supply chain and induced consumer spending impacts were included.

4.2.1 Agricultural production

Agricultural production accounted for a large contribution to GDP in 2021, worth USD 42.9 billion and equal to 47% of the entire agri-food sector's footprint. Most of this impact, totalling USD 33.5 billion, came directly from the activities of agricultural producers, with a further USD 6.0 billion sustained indirectly through the supply chain and USD 3.4 billion through the induced consumption activity generated by employees spending their earnings.

Fig. 13: Agri-food industry contribution to Malaysian GDP, by component, 2021

US$, billions (2021 prices)



Source: Oxford Economics

The agricultural sector was also responsible for a large employment footprint, sustaining 2.0 million jobs in 2021. This represented 38% of all jobs sustained by the Malaysian agri-food sector that year, with the largest portion (1.8 million) employed directly within the sector and a further 280,000 employed through associated indirect and induced activities. The agricultural sector's relatively small share of the agri-food sector's overall employment footprint illustrates the high labour productivity in the sector. Malaysia boasts a high contribution to GDP per worker, three-times that of the next most productive country in our study.

Alongside the GDP and employment footprints, the agricultural sector was responsible for a total tax footprint worth USD 3.6 billion.

4.2.2 Food and beverage manufacturing

In 2021, the food and non-alcoholic beverage manufacturing sector contributed a total of USD 27.6 billion to domestic GDP, representing 30% of the entire agri-food sector's footprint. The direct activities of F&B manufacturers contributed USD 10.4 billion of this impact, with the remaining USD 17.2 billion coming from the indirect and induced contributions.

Alongside this GDP contribution, F&B manufacturing boasted a total employment footprint of 1.08 million jobs in 2021 – one fifth of the whole agri-food sector's total. The direct activities of F&B manufacturers were responsible for sustaining 440,000 of these jobs, with the remainder coming through the sector's supply chain and induced consumer spending channels. The sector was also responsible for contributing USD 3.4 billion in tax revenues.

4.2.3 Food and beverage distribution

The third component of the agri-food sector's economic footprint is F&B distribution, which includes the wholesale and retail of F&B products, as well as their consumption in catering establishments and hotels. In 2021, this component of the sector made a contribution of USD 21.5 billion to Malaysian GDP. This represents 23% of the total GDP footprint of the agri-food sector, which is the largest share held by the distribution sector for any country in this study.

Its share of the total was even higher in 2019, representing 32% of the sector. The large relative weight of this component in the agri-food sector reflects the greater consumer spending power of the relatively higher-earning Malaysian population.

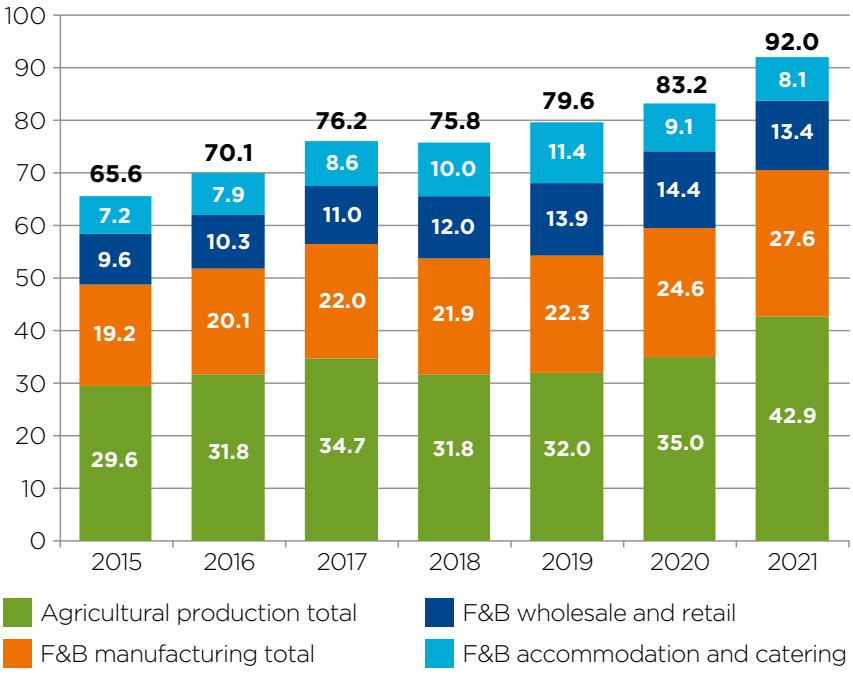
F&B distribution was responsible for sustaining 2.3 million jobs in 2020. The largest portion of these, totalling 1.4 million, came in the catering sector, with a further 600,000 from F&B retail. In addition to this, the sector contributed 2.0 billion in tax revenues.

4.3 THE EVOLUTION OF THE MALAYSIAN AGRI-FOOD SECTOR

The economic footprint of the Malaysian agri-food sector has grown significantly over the last seven years. Its contribution to GDP was 40% larger in 2021 than in 2015. This represents rapid growth, averaging 6% per year in real terms, with every component of the agri-food sector contributing more to GDP in 2021 than in 2015.

Fig. 14: Change in GDP contribution of Malaysian agri-food sector, by component, 2015-2021

US$, billions (2021 prices)

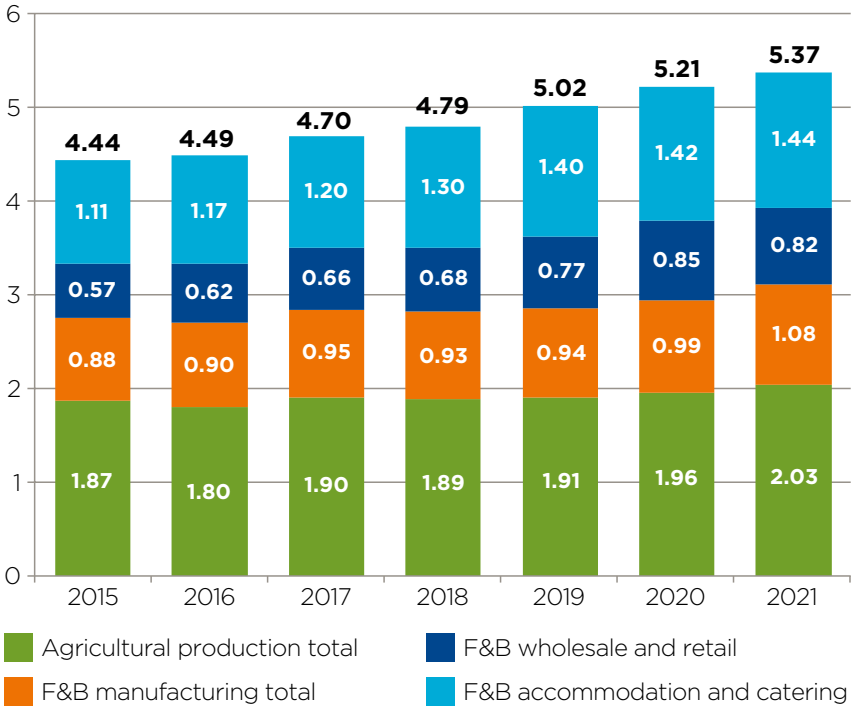


Source: Oxford Economics

The sector enjoyed particularly strong growth in 2021, driven by the recovery of its agricultural and F&B manufacturing sectors. The strength of this growth masks certain weak spots in the wider sector's performance, notably a decline in the value of agricultural production in 2018 and 2019, and a severe slowdown in F&B distribution as a result of the Covid-19 pandemic—particularly the drop in tourism and the strict Movement Control Orders (MCOs) put in place.

The Malaysian agri-food sector's employment footprint has grown more consistently year-on-year, sustaining 930,000 more jobs in 2021 than in 2015—a 21% increase. In terms of employment, the impact of the slowdown in agricultural production in 2018 and 2019, and during the Covid-19 pandemic, is less apparent. Notably, whilst employment has increased over this period, it has done so more slowly than the sector's GDP footprint, signalling a rise in labour productivity, despite already being significantly more productive than other major agri-food sectors in the region. Between 2015 and 2021 the sector's contribution to GDP per worker increased by 16%, illustrating the continued development of a sector that is already significantly more productive than that of other countries in the region.

Fig. 15: Change in employment footprint of Malaysian agri-food sector, by component, 2015-2021



Source: Oxford Economics

4.3.1 Agricultural production

The economic footprint of Malaysia's agricultural sector has grown robustly in recent years. The value of its contribution to GDP was 45% larger in 2021 than in 2015, representing an annualised growth rate of 6.4%. This makes it the fastest growing component of the agri-food sector. However, this growth has not been consistent over time, with weaker performance in 2018 and 2019 in terms of the US dollar value of its output. One possible reason for this decrease is poor weather, with irregular levels of rainfall affecting growing conditions.[8]

Since the Covid-19 pandemic emerged, the agricultural sector has grown in value, but this is driven largely by rising prices. Output volumes have actually contracted over the same period. In the last two years, the cost of non-price controlled, locally produced food items has risen—the Ministry of Agriculture and Food Industries reported a 32% increase in prices for fresh food, attributed to the impacts of the pandemic.[9]

Employment growth within the sector has been consistent, with 230,000 more people employed in 2021 than 2015 and only a slight decrease in

[8] https://www.straitstimes.com/asia/se-asia/malaysias-farmers-fret-cold-wet-spell-could-slow-output-of-veggies-and-flowers
[9] Department of Statistics Malaysia: Selected Agricultural Indicators, Malaysia, 2021

2018, indicating that labour supply was not the key reason for the significantly weaker agricultural output in that year. The overall growth in employment has been lower than that of the GDP footprint, illustrating increased labour productivity; the labour productivity of workers directly employed under agricultural production has been growing at an average rate of 5% annually since 2015.

4.3.2 Food and beverage manufacturing

The food and beverage production sector has enjoyed consistent year-on-year growth since 2015, in terms of its contribution to GDP, with the exception of 2018, the only year where its contribution to GDP was smaller than the year before. By 2021, the total GDP footprint of F&B manufacturing had grown by 44% compared to 2015 levels, representing an annualised growth rate of 6.3%. It is notable that the sector achieved its highest growth rates since 2015 in the last two years—10% growth in 2020 and 12% growth in 2021. This was achieved despite movement control orders and social distancing rules which resulted in disrupted production processes due to shortages in inputs and a decrease in demand of goods.[10]

The employment footprint of F&B manufacturing has also grown but has done so more slowly as the sector has become more productive. In 2021, the sector's employment footprint sustained 200,000 more jobs than in 2015, a 23% increase. In fact, output grew at an even faster pace than employment, signalling significant productivity gains by those directly involved in food and beverage manufacturing. Despite facing manpower shortages as a result of the pandemic[11], the sector's employment continued to grow, recording a 14% increase between 2019 and 2021, and adding 50,000 jobs.

4.3.3 Food and beverage distribution

The food and beverage distribution sector contracted in both 2020 and 2021 in the face of the Covid-19 pandemic. Prior to this it had enjoyed consistent growth—its contribution to GDP in 2019 was around 50% larger than in 2015. Despite the 15% contraction since 2019, the sector is still significantly larger than its 2015 levels, in real terms.

In fact, the impact of the pandemic was uneven across this industry segment. F&B activities with accommodation providers contracted by more than three fifths, illustrating the impact of reduced tourism; and catering services sustained a 26% decline over the period, which was the largest contributor to the overall decline. On the other hand, wholesale and retail together only contracted slightly, as a sign of relatively robust domestic consumption.

Employment in this segment has grown consistently, expanding in 2020 and 2021, despite the pandemic. As of 2021, 570,000 more people were employed by F&B distribution than in 2015, an increase of one third. Prior to the pandemic, retail and catering saw the most rapid growth. Over the last two years, the F&B wholesale component has been the strongest performer. However, due to the sheer size of the catering sector, the moderate growth sustained in the last two years was outweighed by the decline in the employment footprint in both the accommodation and retail sectors.

[10] FFTC-AP: Managing food security during and after the COVID-19 pandemic
[11] The Malaysian Reserve: Manufacturing loses almost 22,000 workers, details recovery

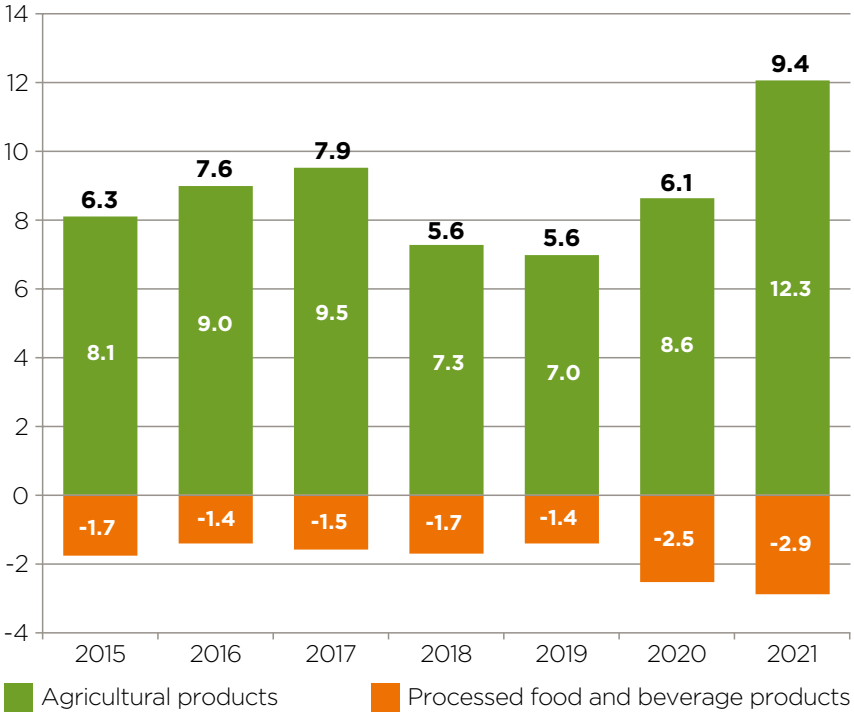
4.4 TRADE IN AGRI-FOOD PRODUCTS

Malaysia maintained its strong trade surplus in agri-food production in 2021, with a net export value of USD 9.4 billion. The value of exports totalled USD 28.1 billion, approximately one and half times its total import value of USD 18.7 billion. The main driver of the trade surplus was the export of agricultural products, which recorded USD 22.0 billion of sales and resulted in a net export surplus worth USD 12.3 billion. Processed F&B products experienced a trade deficit worth USD 2.9 billion.

Since 2015, Malaysia has constantly sustained a strong positive trade balance, with large surpluses in agricultural products and a relatively small trade deficit in processed F&B products. The overall trade surplus has been growing despite the weaker performance in 2018 and 2019 which was mainly attributed to the decrease in agricultural exports, mirroring the weaker GDP contribution of the sector those years. Since the pandemic, the agri-food sector has continued its growth path, rising sharply to its largest-ever trade surplus in 2021. Again, this mirrors wider economic conditions, after a sharp increase in agricultural prices in 2021 boosted the value of exports from Malaysian producers.

Fig. 16: Net exports of primary and processed food and non-alcoholic beverages, Malaysia, 2015-2021

US$, billions (2021 prices)



Source: Oxford Economics

szefei/Shutterstock.com

THE AGRI-FOOD SECTOR IN THE PHILIPPINES

TOTAL ECONOMIC IMPACT

Agricultural production · F&B manufacturing · F&B distribution

A total contribution to GDP worth $126.7 billion

$51.0 bn · $58.7 bn · $17.1 bn

F&B manufacturing represents the **largest segment** of the industry.

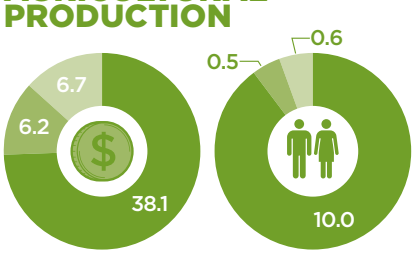
A total employment footprint of 17.6 million

11.1 mn · 3.8 mn · 2.7 mn

The Philippines agri-food sector employed **40%** of the country's workforce in 2021.

FROM FARM TO FORK

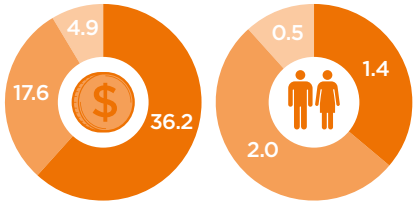
AGRICULTURAL PRODUCTION



$51.0 billion · 11.1 million

Direct · Indirect · Induced

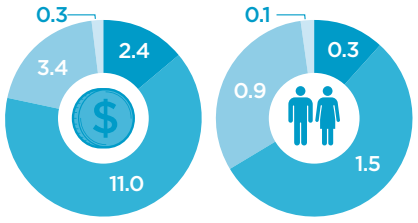
FOOD & BEVERAGE MANUFACTURING



$58.7 billion · 3.8 million

Direct · Indirect · Induced

FOOD & BEVERAGE DISTRIBUTION



$17.1 billion · 2.7 million

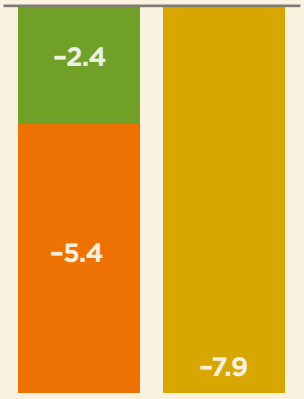
Wholesale · Retail · Catering · Accommodation

TRADE DEFICIT

The Philippines relies on imports of food, with 2021 representing its largest trade deficit in recent years.

Agricultural products · Processed F&B products · Total

Net exports in 2021 (US$, billion)

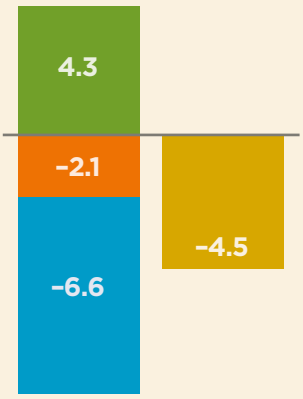


COVID-19 IMPACT

The sector has shrunk during the COVID-19 pandemic, by a similar amount to the wider economy.

Agricultural production · F&B manufacturing · F&B distribution · Total

Change in GDP contribution (US$, billion)



Totals may not sum due to rounding. $ = US dollar.

5. THE AGRI-FOOD SECTOR'S IMPACT IN THE PHILIPPINES

The structure of the Philippines agri-food sector stands out amongst its Southeast Asian neighbours. The food and beverage (F&B) manufacturing industry is the largest component of the sector in the Philippines, as opposed to agricultural production, which accounts for the lion's share of the sector's economic footprint in the wider region. This betrays the broader structural shift taking place towards an industrial and service-based economy in the Philippines—agricultural production's share of national GDP has decreased since 2015 as the broader economy has developed.

In this chapter, we map out the economic footprint of the agri-food sector in the Philippines and its different components. We then go on to analyse its trajectory over recent years and the impact the Covid-19 pandemic had on the sector's performance, before considering the Philippines' international trade position in agri-food products.

All values are quoted in US dollars, adjusted to keep prices and exchange rates constant at 2021 levels. This enables comparability across the years and the five markets in this report. As is detailed in Box 1, we adjust prices based on economy-wide, rather than sector-specific inflation indices, because our analysis is designed to capture the agri-food sector's impact throughout the whole economy.

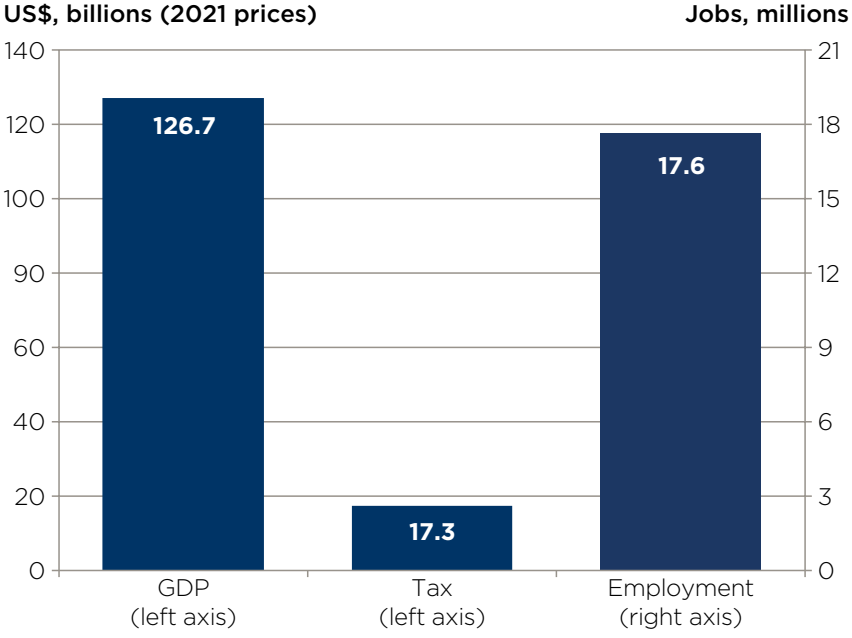
5.1 THE TOTAL ECONOMIC IMPACT OF THE AGRI-FOOD SECTOR

The agri-food sector contributed USD 126.7 billion to the Filipino economy in 2021. This contribution represented approximately 32% of the country's national GDP that year, demonstrating its huge importance in the domestic economy.

The agri-food sector supported 17.6 million Filipino jobs in 2021, accounting for nearly 40% of total employment in the economy that year. The sector also contributes large flows of tax revenues to the government each year, primarily in the form of corporation and income taxes. In 2021, the sector generated USD 17.3 billion worth of tax payments to the Philippines government.

The Philippines agri-food sector is one of the more productive in the region, with a contribution to GDP worth USD 7,200 per worker placing it second behind only Malaysia. One reason for this is the proportionately large role of food manufacturing in the sector, which tends to be more productive than agricultural production and service-oriented activity.

Fig. 17: Total economic contribution of the agri-food sector in the Philippines, 2021



Source: Oxford Economics

5.2 THE AGRI-FOOD SECTOR IN DETAIL

Our analysis focuses on the economic impact of three components of the agri-food industry: agricultural production, F&B manufacturing, and F&B distribution. The Philippines is the only country in our Southeast Asia study in which the agricultural production component does not dominate the economic footprint. Rather, it is F&B manufacturing (inclusive of its indirect and induced activities) that accounts for the largest share of the sector's contribution to GDP, generating 46% of the agri-food sector's GDP impact and 21% of its jobs.

5.2.1 Agricultural production

Despite the importance of F&B manufacturing, agricultural production still accounts for a sizeable economic impact. In 2021, agricultural production contributed USD 38.1 billion to national GDP via direct channels alone. It generated an additional USD 12.9 billion via indirect channels through the supply chain and induced channels through consumer spending.

Agricultural activities are also critical to supporting livelihoods in the Philippines. The industry sustained nearly 10 million jobs in 2021 via direct activities, and another 1.1 million jobs via indirect and induced activities. Thus, agricultural production still supported approximately one in every four Filipino jobs in 2021. Agricultural production also contributed USD 7.1 billion worth of taxes to the Philippines government in 2021.

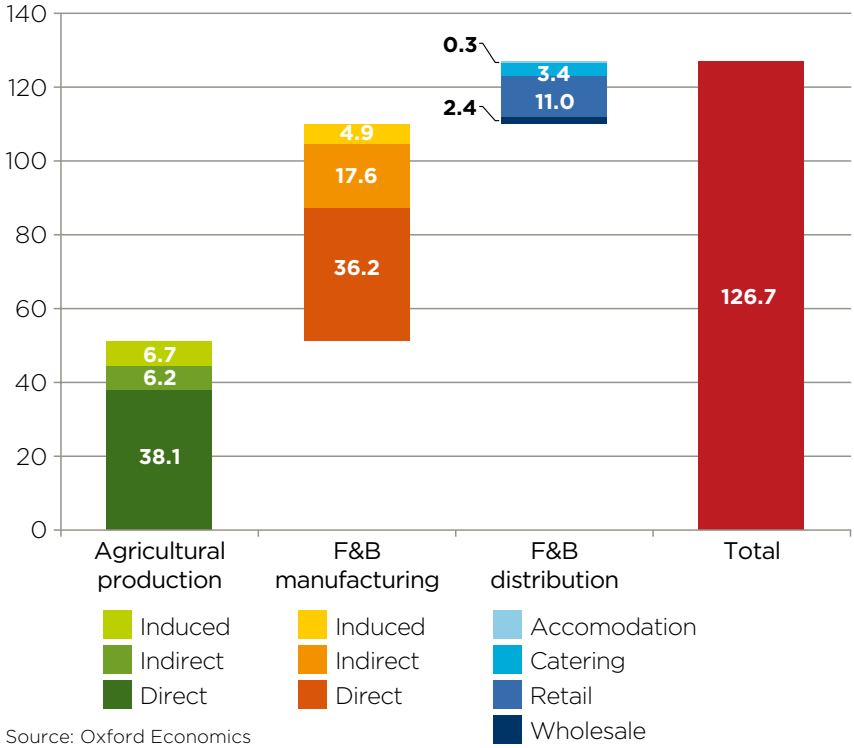
5.2.2 Food and beverage manufacturing

The F&B manufacturing sector contributed USD 36.2 billion to the Philippines GDP in 2021 via direct channels, as well as USD 17.6 billion and USD 4.9 billion via indirect and induced channels respectively. Collectively, this makes F&B manufacturing the largest contributor to GDP of the three major pillars of the agri-food sector. The Philippines was the only country in our study in which this was the case.

The importance of F&B manufacturing to the Philippines economy can also be seen in its employment statistics. This component of the agri-food sector directly sustained 1.4 million jobs in 2021, plus roughly a further 2.4 million jobs via indirect and induced channels. Workers in this part of the Philippines' agri-food industry are amongst the most productive employees in the agri-food industry overall. Furthermore, tax contributions linked to F&B distribution in 2021 totalled USD 8.2 billion.

Fig. 18: Agri-food industry contribution to the Philippines' GDP, by component, 2021

US$, billions (2021 prices)



Source: Oxford Economics

5.2.3 Food and beverage distribution

Similar to other Southeast Asian countries in our study, the F&B distribution component in the Philippines makes up the smallest share of the agri-food sector. Our analysis unpacks the F&B distribution component's impact into its wholesale, retail, accommodation, and catering activities. The total footprint across these four types of activities came to an estimated USD 17.1 billion in 2021. The lion's share was attributable to retail activities, which alone accounted for 64% of F&B distribution's footprint. Catering and accommodation activities made up 21% of the footprint whilst wholesale activities made up the rest.

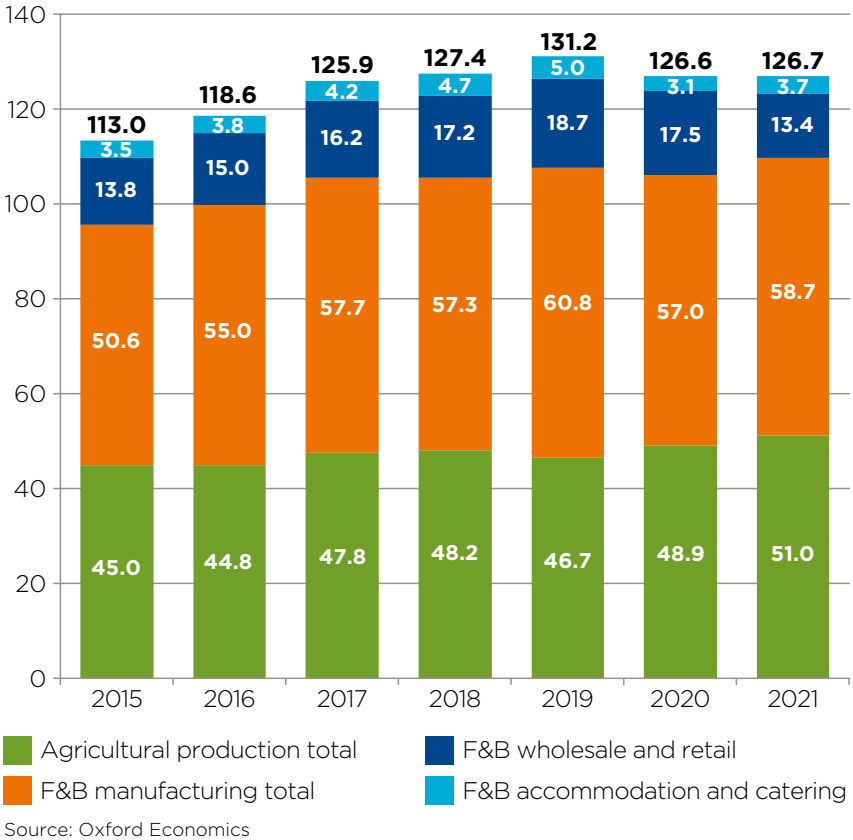
The labour demands across different activities of F&B distribution broadly mirror the contribution to GDP. Retail sustained the largest number of jobs, with 1.5 million positions in 2021; wholesale added 0.3 million more. Meanwhile, catering and accommodation activities sustained around 0.9 million jobs in the same year. F&B distribution also generated a tax footprint worth USD 1.9 billion in 2021, accounting for 11% of the agri-food's overall tax contribution that year.

5.3 THE EVOLUTION OF THE PHILIPPINES' AGRI-FOOD SECTOR

The Filipino agri-food sector was harshly affected by the economic disruption caused by the Covid-19 pandemic. The industry had consistently recorded robust year-on-year growth up to 2019, expanding at an average annual growth rate of 4%. Consequently, its USD 131.2 billion contribution to the Philippines GDP in 2019 was its largest economic footprint to-date. However, this trend reversed in 2020 with the onset of the pandemic and the sector contracted by 3.4%. The agri-food sector's performance improved marginally in 2021, but remained far from 2019 levels, contributing USD 126.7 billion to the national GDP.

Fig. 19: Change in GDP contribution by the Philippines' agri-food sector, by component, 2015-2021

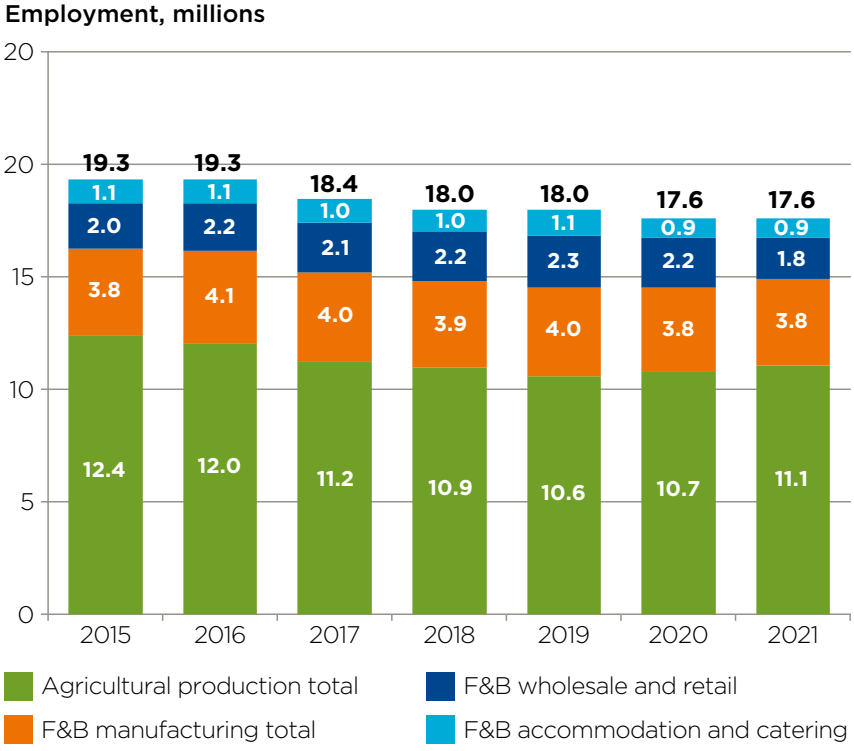
US$, billions (2021 prices)



Source: Oxford Economics

In the years leading to 2020, the agri-food sector jobs footprint progressively declined every year, despite a growing GDP footprint. By 2021, the sector supported 1.7 million fewer jobs than it did in 2015. Aside from the pandemic, a key reason for this decline is the sector's productivity improvements. Productivity across the Philippines' agri-food sector grew by 23% between 2015 and 2021, particularly in agricultural production. However, the onset of the pandemic paused this trend, with employment falling by less than GDP. This is likely a combination of firms retaining workers despite their output falling, as well as unemployed workers in other sectors of the economy reverting to lower wage professions, for instance in agriculture, where employment rose.

Fig. 20: Change in employment footprint by the Philippines' agri-food sector, by component, 2015-2021



Source: Oxford Economics

5.3.1 Agricultural production

The economic footprint of Filipino agricultural production has increased since 2015. Agricultural activities and the associated supply chain and consumer spending footprints contributed USD 51.0 billion in 2021, marking a 9% increase from its 2019 levels and a 13% increase from 2015. However, since 2019, the volume of output of the sector has fallen, which the Philippines government has attributed to the pandemic, Typhoon Odette, and waves of African swine fever that affected produce and livestock.[12] This hindered output, whilst also heightening price inflation. Alongside significant increases in global agricultural prices, the value of agricultural output has actually risen during this period, as reflected in the expanding economic footprint, but the volume of output has decreased.

Agricultural productivity was a key driver behind the shrinking employment footprint of the agri-food sector before 2020. Between 2015 and 2019, agricultural production supported an average of 4% fewer jobs each year. Here, the growth in labour productivity has allowed output to increase with a smaller workforce, allowing the workforce to transition into occupations with greater labour productivity levels.

Since the Covid-19 pandemic, jobs in the sector increased by 0.1 million in 2020, then 0.4 million in 2021. This rise could be partly explained by essential roles in the more stable agriculture sector offsetting redundancies across the wider economy and will thus likely revert to the historical trend as part of the wider economic recovery.

[12] https://www.da.gov.ph/wp-content/uploads/2021/01/CLIPPINGS-TODAY-JANUARY-28-2021.pdf

5.3.2 Food and beverage manufacturing

While F&B manufacturing was set back by the initial waves of the pandemic in 2020, it made a strong recovery in 2021. Its economic footprint fell from a record USD 60.8 billion in 2019 to USD 57.0 billion in 2020, before rising to USD 58.7 billion again in 2021. Inclusive of this recovery, F&B manufacturing's GDP contribution increased by nearly 16% in real terms between 2015 and 2021—making it the fastest growing component of the agri-food sector.

F&B manufacturing supported 3.8 million jobs in 2020 and 2021. This does not represent a significant shift from its pre-Covid-19 employment footprint, which supported between 3.8 million to 4.1 million jobs every year since 2015. Over the period since 2015, F&B manufacturing's consistent jobs footprint and growing contribution to GDP illustrate robust productivity growth in this sector.

5.3.3 Food and beverage distribution

While agricultural production and F&B manufacturing appear to have bounced back quickly from the economic impacts of the Covid-19 pandemic, F&B distribution endured the most significant fallout. The sector was on a steady upward trajectory until 2019 when its GDP contribution peaked at USD 23.7 billion (in 2021 prices). This fell sharply to USD 20.6 billion in 2020, and further to USD 17.1 billion in 2021. The USDA Foreign Agricultural Service (FAS) in Manila assessed that the 2021 decline was a result of the outbreak of the Covid-19 Delta variant and the abruptness of quarantine restrictions that followed it[13].

Ultimately, the sector endured a 28% drop in its GDP footprint between 2019 and 2021. This was primarily driven by the wholesale and retail channels, which contributed only USD 13.4 billion in 2021 compared to USD 18.7 billion in 2019.

According to the FAS in Manila, the maximum impact within wholesale and retail channels was felt by full-service restaurants, cafes, and bars. Limited-service restaurants, on the other hand, were a little more robust due to their wider area coverage, delivery, and drive-through services for certain foods.[14]. Lastly, accommodation and catering activities made up the smallest share but contracted by 37% in 2020 before partially recovering in 2021.

This pattern in F&B distribution's economic footprint was also mirrored in its labour demand. F&B distribution sustained 3.4 million jobs in 2019, but only 3.1 million jobs in 2020 and 2.7 million jobs in 2021. Wholesale and retail were the key drivers, as they progressively supported less employment every year during the pandemic. While accommodation and catering activities initially contracted in 2020, the number of jobs supported by this sector stabilised in 2020 and 2021.

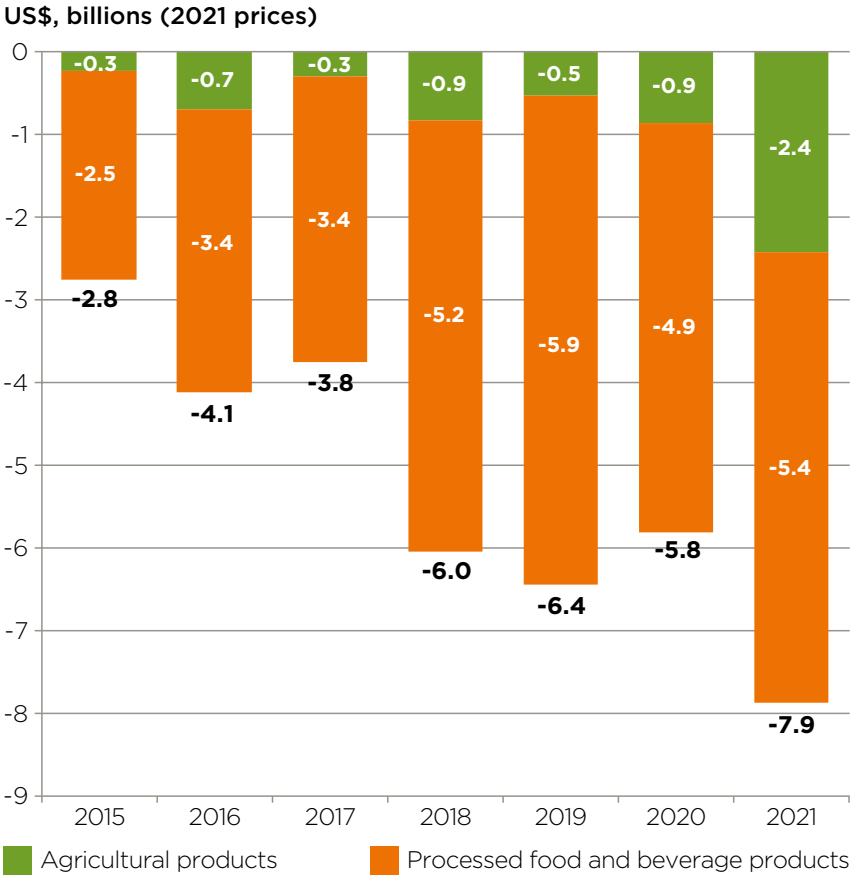
[13] Manila Bulletin: Slower growth seen in food services sector in 2021
[14] Manila Bulletin: Slower growth seen in food services sector in 2021

5.4 TRADE IN AGRI-FOOD PRODUCTS

The Philippines trade deficit in agri-food products grew significantly in 2021, reaching a net trade deficit worth USD 7.9 billion. Overall, the agri-food sector exported agri-food products worth USD 6.2 billion but imported over double this value at USD 14.1 billion. The main contributor to this imbalance was processed F&B products, which ran a deficit worth USD 5.4 billion, but agricultural products also reverted from trend to contribute significantly to the deficit in 2021.

The Philippines has broadly experienced a growing negative trade balance since 2015, it dropped by 36% in 2021 from a year earlier to its lowest point. Prior to 2021, agricultural products had accounted for between 8% to 17% of the overall deficit. However, the severe impact on agricultural production of Covid-19 and Typhoon Odette intensified demand for imports.

Fig. 21: Net exports of primary and processed food and non-alcoholic beverages, The Philippines, 2015-2021



Source: Oxford Economics

Jordi Calvera/Shutterstock.com

THE AGRI-FOOD SECTOR IN THAILAND

TOTAL ECONOMIC IMPACT

Agricultural production · F&B manufacturing · F&B distribution

A total contribution to GDP worth $128.6 billion

$54.7bn $45.7bn $28.3bn

Thailand's agri-food sector accounts for **a quarter of the economy's GDP**.

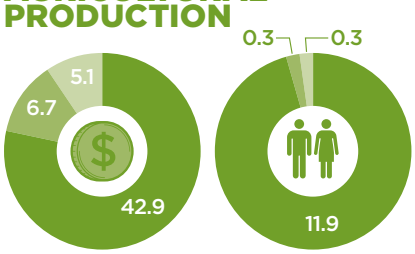
A total employment footprint of 18.0 million

12.4mn 2.1mn 3.4mn

The sector is dominated by its massive agricultural sector, which makes up **two thirds** of its jobs.

FROM FARM TO FORK

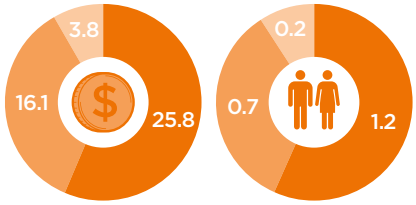
AGRICULTURAL PRODUCTION



$54.7 billion · 12.4 million

Direct · Indirect · Induced

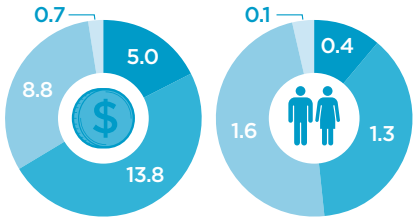
FOOD & BEVERAGE MANUFACTURING



$45.7 billion · 2.1 million

Direct · Indirect · Induced

FOOD & BEVERAGE DISTRIBUTION



$28.3 billion · 3.4 million

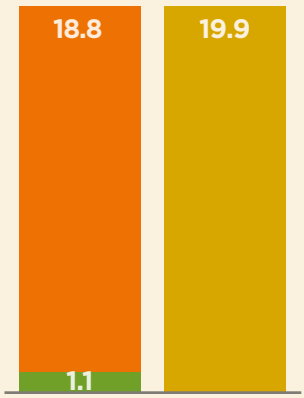
Wholesale · Retail · Catering · Accommodation

TRADE SURPLUS

Its exports of processed food and beverages give it a large trade surplus.

Agricultural products · Processed F&B products · Total

Net exports in 2021 (US$, billion)

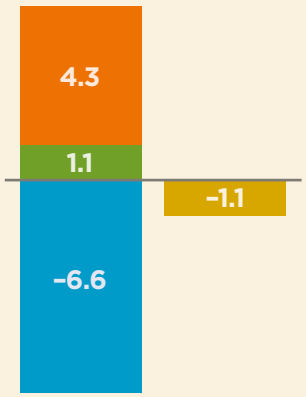


COVID-19 IMPACT

Despite growth in 2021, the sector was still smaller than before the pandemic.

Agricultural production · F&B manufacturing · F&B distribution · Total

Change in GDP contribution (US$, billion)



Totals may not sum due to rounding. $ = US dollar.

6. THE AGRI-FOOD SECTOR'S IMPACT IN THAILAND

Economic activity in Thailand's agri-food sector is distributed broadly across the three components: agricultural production, F&B manufacturing, and F&B distribution. The sector was hit hard by the Covid-19 pandemic and its associated economic downturn. However, it proved resilient and managed to bounce back to pre-pandemic levels in most areas by the second year of the pandemic.

In this chapter, we map out the economic footprint of the agri-food sector in Thailand and its different components. We then go on to analyse its trajectory over recent years and the impact the Covid-19 pandemic had on the sector's performance, before considering Thailand's international trade position in agri-food products.

All values are quoted in US dollars, adjusted to keep prices and exchange rates constant at 2021 levels. This enables comparability across the years and the five markets in this report. As is detailed in Box 1, we adjust prices based on economy-wide, rather than sector-specific inflation indices, because our analysis is designed to capture the agri-food sector's impact throughout the whole economy.

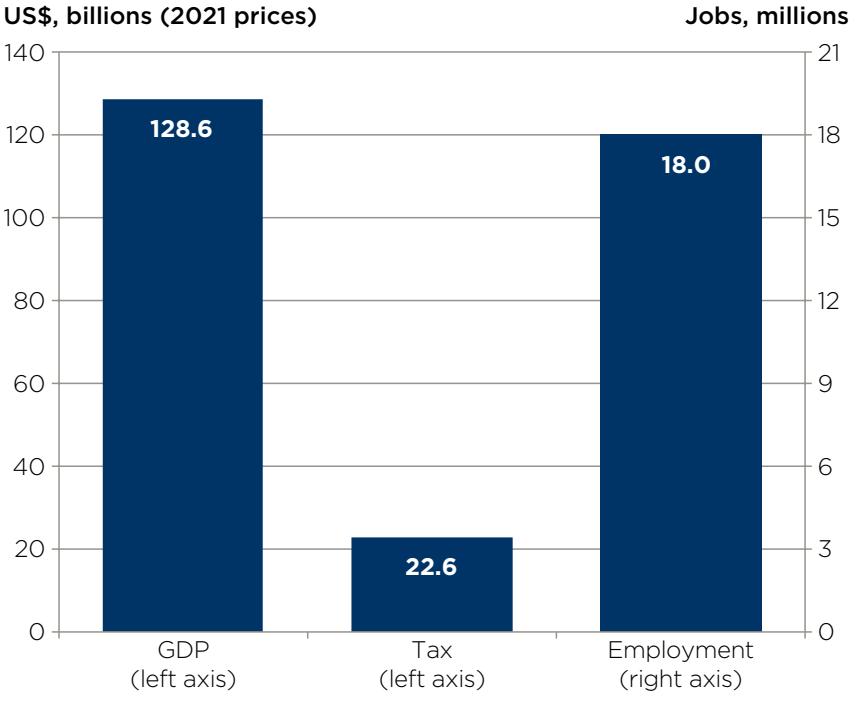
6.1 THE TOTAL ECONOMIC IMPACT OF THE AGRI-FOOD SECTOR

The agri-food sector contributed USD 128.6 billion to Thailand's GDP in 2021. This was equivalent to approximately a quarter of the national GDP that year, illustrating its critical importance to the domestic economy.

The agri-food sector also supported 18.0 million jobs in the Thai economy that year across various stages of the value chain, representing 48% of total jobs in the country. In addition, the industry generated USD 22.6 billion worth of tax revenues for the Thai government in 2021, primarily in the form of income and corporation taxes.

Thailand's agri-food sector ranks in the middle of the five Southeast Asian countries we study in terms of labour productivity, contributing an average of USD 7,200 to GDP per worker in 2021. This indicates that Thailand is performing relatively well in productivity terms relative to its neighbours. However, as the second most economically developed economy in the study (measured in GDP per capita terms), it there is potential for further productivity improvements.

Fig. 22: Total economic contribution of the agri-food sector in Thailand, 2021



Source: Oxford Economics

6.2 THE AGRI-FOOD SECTOR IN DETAIL

Agricultural production (inclusive of its indirect and induced impacts) is the largest component of the Thai agri-food sector, accounting for 43% of the total footprint in 2021. It also supports the largest share of jobs, accounting for 69% of the agri-food total. F&B manufacturing made up 35% of the sector's GDP contribution and 12% of jobs. Meanwhile, the distribution of food and non-alcoholic beverages contributed the remaining 22% of the sector's GVA, and 19% of jobs.

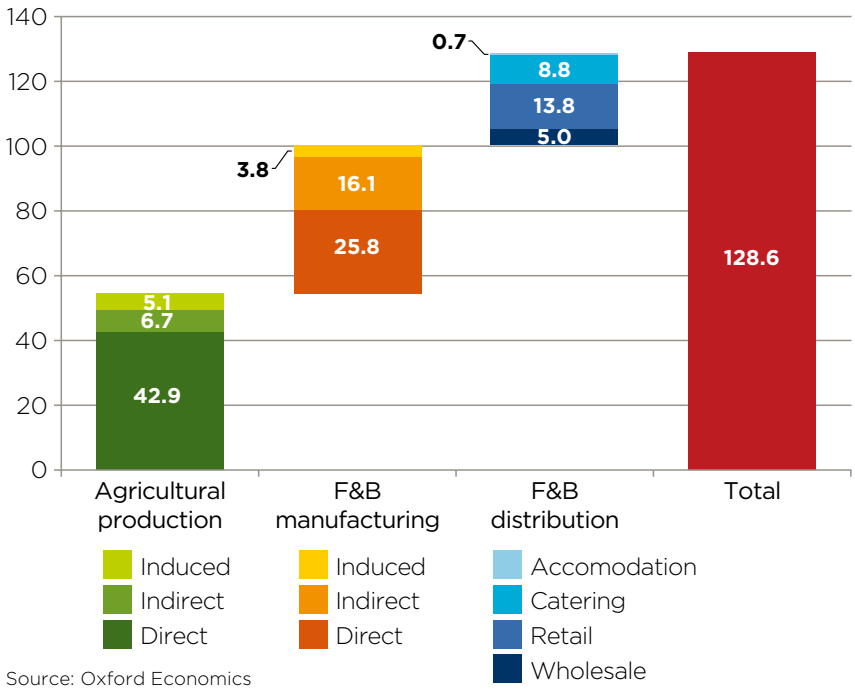
6.2.1 Agricultural production

In 2021, direct agricultural activities generated USD 42.9 billion for the Thai economy. This was further augmented by an indirect impact worth USD 6.7 billion, generated through spending in the supply chain, and an induced impact of USD 5.1 billion, stimulated by workers in the agricultural sector, and its supply chain, spending their wages.

On the workforce front, agricultural production supported 12.4 million jobs in Thailand in 2021, 11.9 million of which were in direct agricultural activities. This represents a large portion of the total, illustrating the labour-intensive nature of farming, forestry, and fishing-related activities in the sector. The agricultural sector also generated USD 5.9 billion in tax revenues for the Thai government.

Fig. 23: Agri-food industry contribution to Thailand's GDP, by component, 2021

US$, billions (2021 prices)



Source: Oxford Economics

6.2.2 Food and beverage manufacturing

As in most Southeast Asian agri-food sectors, the second largest component is F&B manufacturing, which directly contributed USD 25.8 billion to GDP in 2021. After accounting for indirect activities through the supply chain and induced impacts via consumer spending, the total economic impact of Thailand's F&B manufacturing rose to USD 45.7 billion that year.

F&B manufacturing activities support a far smaller share of jobs compared to the share of their economic impact. This is likely explained by their above-average productivity. A worker in F&B manufacturing was nearly three times more productive than the average agri-food sector worker in 2021. Across direct, indirect, and induced channels, F&B manufacturing sustained a total of 2.1 million jobs in 2021. It also raised USD 12.4 billion in tax revenues, accounting for a little over half of agri-food's combined tax revenues that year.

6.2.3 Food and beverage distribution

Finally, F&B distribution contributed USD 28.3 billion to the Thai economy in 2021, equivalent to 5.6% of Thailand's GDP. Nearly two-thirds of this impact came from retail and wholesale channels, which created USD 18.8 billion worth of value for the economy respectively. The remaining share was generated by catering and accommodation activities. This large footprint represents 22% of the agri-food sector's combined contribution to GDP, the second highest of the five countries in the study, illustrating the importance of the F&B distribution industry in Thailand.

Despite the difference in their economic footprints, retail and wholesale activities supported a similar number of jobs as accommodation and catering activities: 1.7 million and 1.8 million jobs, respectively. Overall, the F&B distribution component generated USD 4.4 billion in taxes for the Thai government over the year.

6.3 THE EVOLUTION OF THAILAND'S AGRI-FOOD SECTOR

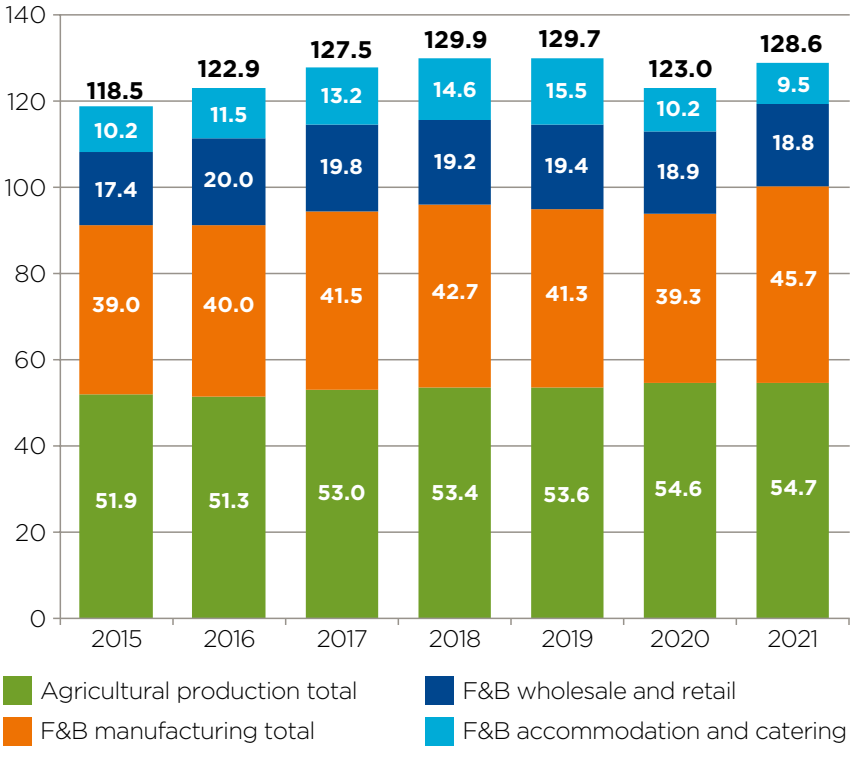
The agri-food sector in Thailand was growing steadily from 2015 to 2019 until the Covid-19 pandemic hit. Since then, its economic footprint shrank from USD 129.7 billion in 2019 to USD 123.0 billion in 2020 (Fig. 20), ending an average growth rate of 2% per year from 2015 to 2019, to contract by 5% between 2019 and 2020. Nevertheless, the sector bounced back quickly from the pandemic-related economic fallout, growing by approximately 5% in 2021, to reach a size of USD 128.6 billion.

By 2021, the agri-food sector's total economic footprint was 9% larger in real terms than in 2015, and only 1% behind its earlier peak in 2018. This robust recovery puts the Thai agri-food industry on track to soon recover its pre-Covid-19 value.

The Covid-19 pandemic left less of a mark on Thailand's agri-food workforce than on its economic output. The total number of jobs supported by the sector shrank briefly in 2020 to 17.6 million jobs, from 17.9 million the year prior, but rose back to 18.0 million in 2021.

Fig. 24: Change in GDP contribution by Thailand's agri-food sector, by component, 2015-2021

US$, billions (2021 prices)



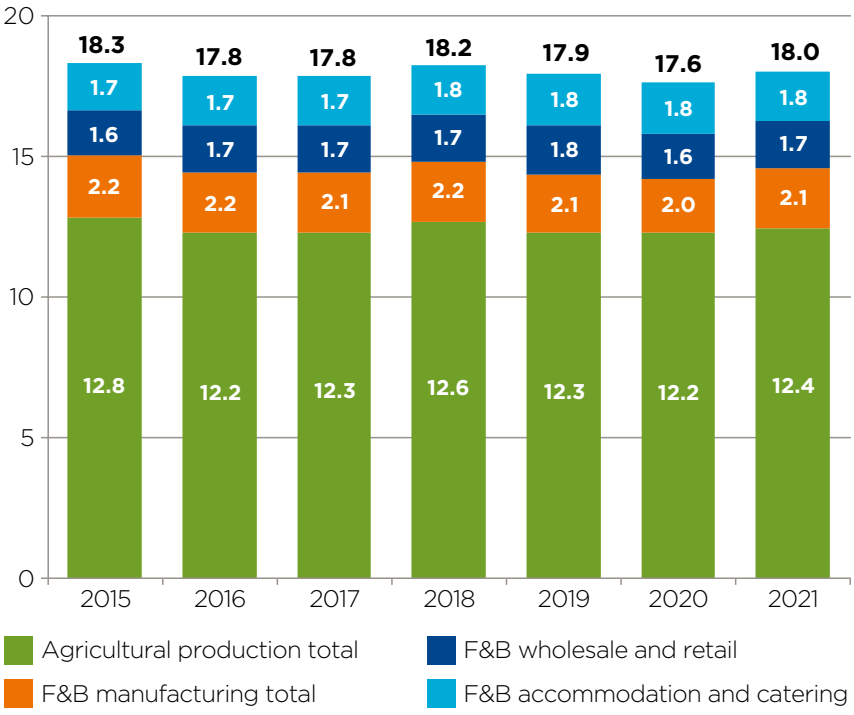
Source: Oxford Economics

The growth in the sector's GDP footprint despite little change in employment numbers, illustrates the growth in labour productivity over time. As of 2021, the sector displayed a contribution to GDP per worker that was 11% larger in 2021 than in 2015. However, this growth is the slowest of the five countries in this study, in large part because of the limited productivity growth of the Thailand's agricultural sector.

6.3.1 Agricultural production

The total contribution agricultural production makes to Thai GDP has climbed consistently—in real terms—since 2015, despite the dampening effects of the pandemic, with an average growth rate of 1% per year from 2015 to 2021. Nonetheless, the agricultural sector was able to retain this slow and steady growth throughout the pandemic and created an economic footprint worth USD 53.6 billion in 2019, which grew to USD 54.7 billion in 2021. With this growth, Thailand's primary agricultural activities played a key role in the resilience of the agri-food sector's economic footprint during the pandemic.

Fig. 25: Change in employment footprint by Thailand's agri-food sector, by component, 2015-2021



Source: Oxford Economics

Meanwhile, employment in agriculture has moved in the opposite direction. Historically, agricultural production sustained the highest number of jobs at 12.8 million in 2015 but has never reached this peak since. The sector has supported an average of 12.3 million workers since the Covid-19 pandemic began. This concurrent growth in the economic footprint and fall in the number of jobs sustained implies long-term labour productivity growth in the sub-sector.

However, this productivity growth is slower than that experienced by other countries in the region. This could be due to a variety of reasons, including relatively high subsidies, relatively poor weather conditions affecting rice production, and diminished export competitiveness against its regional counterparts due to inflated crop prices.[15]

[15] Nikkei Asia: Thai agriculture needs reform from ground up

6.3.2 Food and beverage manufacturing

The trend in agriculture's impact on GDP has been largely mirrored in F&B manufacturing, which expanded its economic footprint every year until 2018, when it contributed USD 42.7 billion (2021 prices). After a slight contraction that started before the Covid-19 pandemic, the sector's total contribution to Thai GDP fell to USD 39.3 billion in 2020. But after a bold recovery, F&B manufacturing generated USD 45.7 billion for the Thai economy that year.

This strong performance can be partly explained by the Thai Ministry of Industry's "Bubble and Seal" initiative, which strictly controlled the movement of factory workers to ensure that factories would continue to operate at 100% capacity through Covid-19, whilst preventing further outbreaks. The F&B manufacturing recovery was also helped by an increase in agricultural raw material production and an expansion in food exports in 2021.[16]

On the employment front, F&B manufacturing has sustained a relatively stable number of jobs over the period of our analysis. On average, the sub-sector employed 2.1 million people annually from 2015 to 2021. This briefly dipped to 2.0 million during the initial wave of the pandemic but has since climbed back to its pre-pandemic levels from 2019. The overall growth in the segment's contribution to GDP means that its labour productivity has grown significantly, standing 23% higher in 2021 than in 2015. This growth rate is higher than that of other components of the sector, despite it having started with the highest productivity to begin with.

6.3.3 Food and beverage distribution

As in other countries around the region, F&B distribution in Thailand was harshly affected during the pandemic. The combined economic impact created by wholesale, retail, accommodation, and catering activities reached USD 41.3 billion in 2019 but fell to USD 29.1 billion in 2020 and further to USD 28.3 billion in 2021.

Retail and catering activities stood out as the only aspect of F&B distribution to recover to pre-pandemic levels by 2021. Meanwhile, the economic footprints of wholesale and accommodation-related activities shrank by a further 16% and 61% respectively. This is potentially because restrictions during the pandemic harshly impacted Thailand's key tourism and hospitality sector, which would have had different knock-on effects across F&B distribution activities but reduced their earnings to a lesser degree.

The F&B distribution sector's employment footprint has not fluctuated in the same way. Accommodation and catering activities have supported roughly the same number of jobs since 2018, at 1.8 million jobs annually. The numbers linked to wholesale and retail employment dipped from 1.8 million jobs (2019) to 1.6 million (2020) then rose to 1.7 million (2021). This range is, however, similar to the number of jobs supported pre-pandemic, suggesting a tendency in the sector to retain workers through the difficult periods of the pandemic.

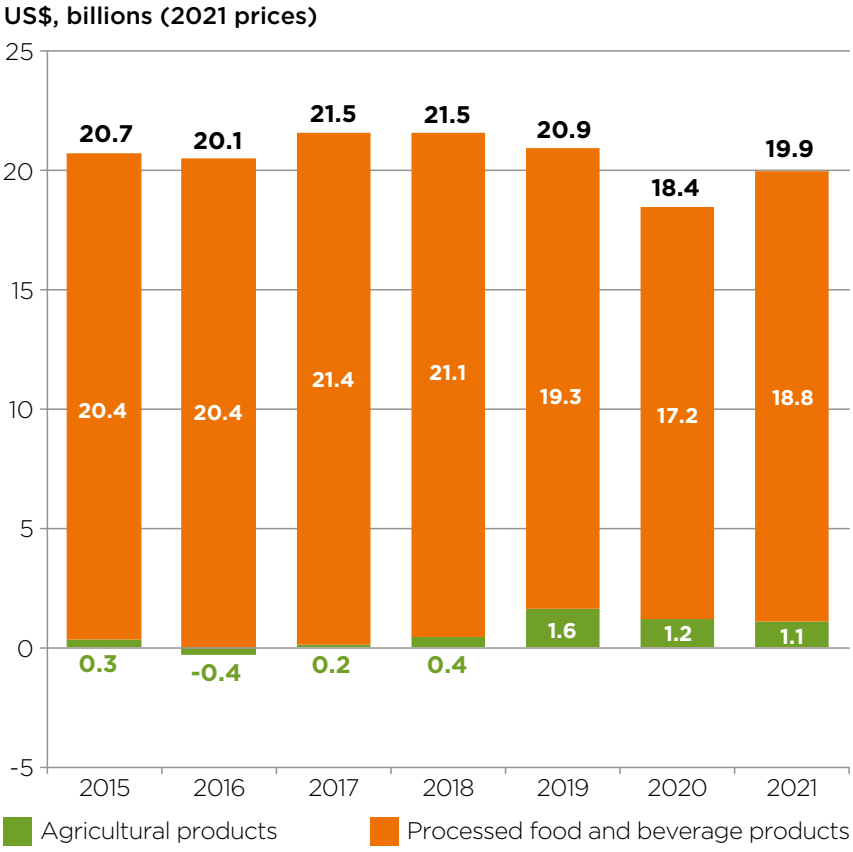
[16] Food Navigator Asia: Making a comeback: Thailand hails food industry growth after COVID-19 slump- but urges firms to maintain vigilance

6.4 TRADE IN AGRI-FOOD PRODUCTS

Thailand's agri-food sector has consistently maintained a strong trade surplus since 2015, with minimal fluctuations except for in 2020. The sector maintained an average trade surplus of USD 20.9 billion until 2019 when it contracted to USD 18.4 billion as the Covid-19 pandemic took hold. However, it was able to largely recover to previous levels with a surplus of USD 19.9 billion in 2021. This included exports worth USD 34.8 billion and imports worth USD 15.0 billion.

Historically, the positive trade balance was almost entirely driven by processed F&B goods. Thailand's agricultural sector (specifically rice production) has struggled with its export competitiveness but maintained almost a close balance in imports and exports until 2018. In recent years, Thai processed food and beverage exports have grown, generating a surplus of USD 1.1 billion in 2021.

Fig. 26: Net exports of primary and processed food and non-alcoholic beverages, Thailand, 2015-2021[17]



Source: Oxford Economics

[17] Due to COMTRADE data not being released at the time of writing, 2021 values are estimated based on available data for trade of broader agricultural and food products.

stockphoto mania/Shutterstock.com

THE AGRI-FOOD SECTOR IN VIETNAM

TOTAL ECONOMIC IMPACT

Agricultural production · F&B manufacturing · F&B distribution

A total contribution to GDP worth $95.1 billion

$66.9 bn · $16.9 bn · $11.4 bn

Agriculture accounts for **70%** of the sector's contribution to GDP.

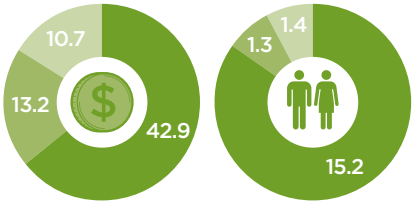
A total employment footprint of 23.5 million

17.9 mn · 2.5 mn · 3.1 mn

Vietnam's agri-food sector employs **nearly half** of the country's workforce.

FROM FARM TO FORK

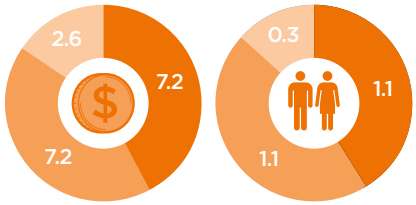
AGRICULTURAL PRODUCTION



$66.9 billion · 17.9 million

Direct · Indirect · Induced

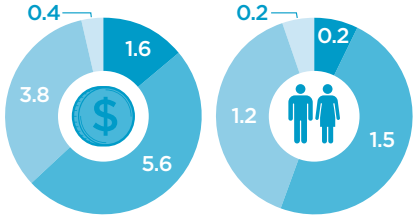
FOOD & BEVERAGE MANUFACTURING



$16.9 billion · 2.5 million

Direct · Indirect · Induced

FOOD & BEVERAGE DISTRIBUTION



$11.4 billion · 3.1 million

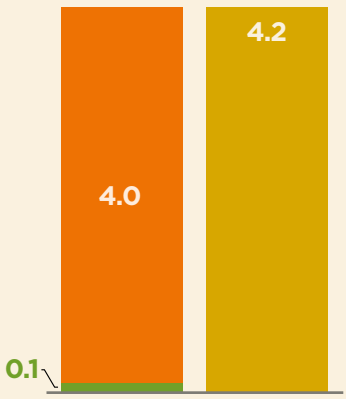
Wholesale · Retail · Catering · Accommodation

TRADE SURPLUS

Vietnam boasts a trade surplus in agricultural and processed food products.

Agricultural products · Processed F&B products · Total

Net exports in 2019 (US$, billion)

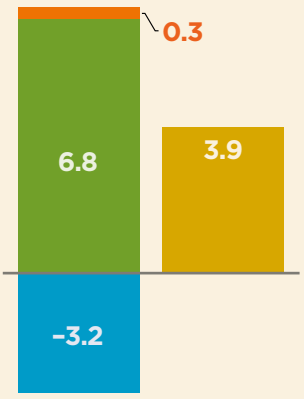


COVID-19 IMPACT

After growing in 2020, the sector contracted slightly in 2021, especially in distribution. However it is still larger than before the pandemic.

Agricultural production · F&B manufacturing · F&B distribution · Total

Change in GDP contribution (US$, billion)



Totals may not sum due to rounding. $ = US dollar.

7. THE AGRI-FOOD SECTOR'S IMPACT IN VIETNAM

Vietnam's agri-food sector is a vital pillar of the domestic economy, supporting a large proportion of the country's total GDP and employment. In 2021, almost half of all jobs in the country and more than a quarter of GDP was attributable to the agri-food sector. Within the agri-food sector itself, more than two-thirds of the total GDP contribution came from agriculture.

The Vietnamese economy has achieved impressive economic growth rates in recent years. Between 2015 and 2021, GDP grew at an average rate of 6% per year, and Oxford Economics projections suggest it will sustain similar growth rates as the country opens post-pandemic. The agri-food sector has benefitted from this economic progress. Its contribution to GDP grew by 18% in real terms between 2015 and 2021, driven in large part by rapid growth in labour productivity. During the same period, the sector's total employment footprint contracted.

In this chapter, we map out the economic footprint of the agri-food sector in Vietnam and its different components. We then go on to analyse its trajectory over recent years and the impact the Covid-19 pandemic had on the sector's performance, before considering Vietnam's international trade position in agri-food products.

All values are quoted in US dollars, adjusted to keep prices and exchange rates constant at 2021 levels. This enables comparability across the years and the five markets in this report. As is detailed in Box 1, we adjust prices based on economy-wide, rather than sector-specific inflation indices, because our analysis is designed to capture the agri-food sector's impact throughout the whole economy.

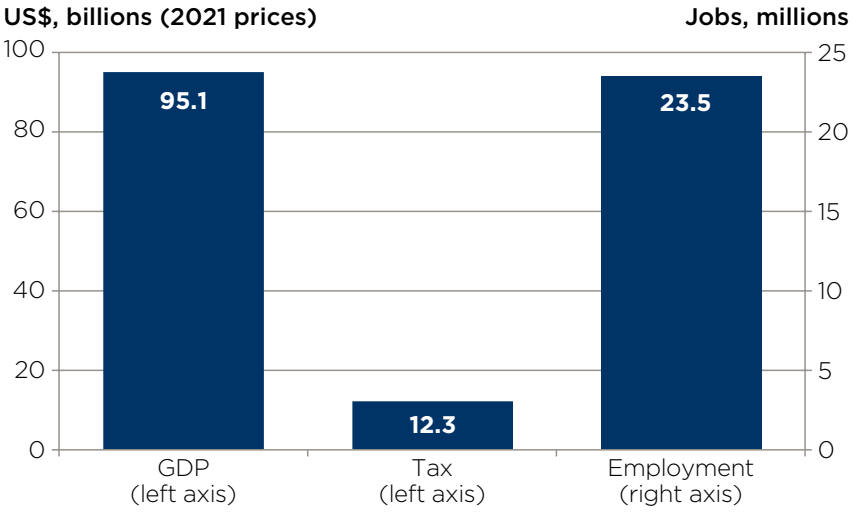
7.1 THE TOTAL ECONOMIC IMPACT OF THE AGRI-FOOD SECTOR

Since 2015, the Vietnamese agri-food sector's economic contribution has been on the rise. In 2021, it is estimated to have contributed USD 95.1 billion to GDP. This is equivalent to 26% of the whole Vietnamese economy. It is also a major employer. The sector accounted for a total of 22.5 million workers in 2021, which represents 48% of country's total employment.

In addition, the agri-food sector contributes substantial tax revenues to the government, primarily in the form of corporation and income taxes. We estimate that the agri-food sector contributed a total of USD 12.3 billion in tax revenues in 2021.

With an average contribution to GDP of USD 4,000 per worker in 2021, Vietnam's agri-food sector has the lowest labour productivity in the study. For Vietnam to close the productivity gap with the next lowest in our study, Indonesia, the sector would likely need to undergo both a diversification away from its high reliance on agricultural output, as well as productivity growth across all components of the sector.

Fig. 27: Total economic contribution of the agri-food sector in the Vietnam, 2021



Source: Oxford Economics

7.2 THE AGRI-FOOD SECTOR IN DETAIL[18]

We define the agri-food sector as a combination of agricultural production, food and beverage manufacturing, and food and beverage distribution. Our analysis revealed that agricultural production accounted for more than two-thirds of the total agri-food sector's contribution to Vietnamese GDP in 2021 after its indirect supply chain and induced consumer spending contributions were accounted for.

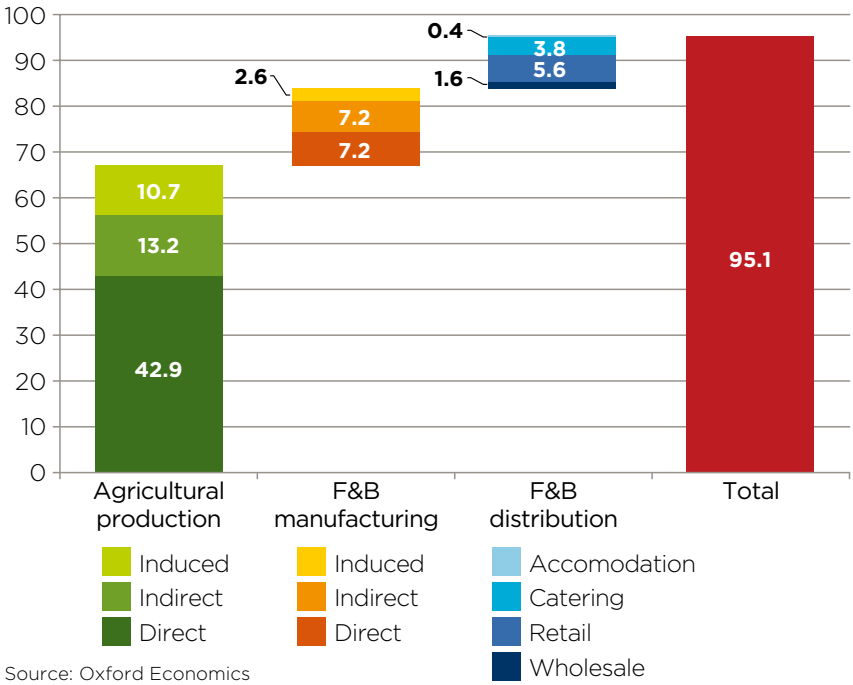
7.2.1 Agricultural production

Agricultural production accounts for more than two-thirds of the agri-food sector's total contribution to GDP in Vietnam. This includes a direct contribution of USD 42.9 billion to GDP and a total impact of USD 66.9 billion once indirect and induced impacts are included. The total economic footprint of this component accounts for 70% of the agri-food sector's total.

Similarly, agricultural production is the agri-food sector's most important source of employment. In 2021, a total of 17.9 million jobs were supported by agricultural production which is 77% of the agri-food sector's total. Of these, 15.2 million were employed directly by agricultural producers, and the remaining 2.7 million were indirectly employed in the supply chain or supported by induced consumer spending. Alongside these impacts, a total of USD 8.1 billion in tax revenue was generated by agricultural production activity.

Fig. 28: Agri-food industry contribution to the Vietnam's GDP, by component, 2021

US$, billions (2021 prices)



Source: Oxford Economics

7.2.2 Food and beverage manufacturing

Food and non-alcoholic beverage manufacturing contributed a total of USD 16.9 billion to Vietnamese GDP in 2021. This amounted to 19% of the agri-food sector's total GDP contribution. For food and beverages manufacturing, the direct and indirect economic impacts each amounted to USD 7.2 billion, with the remainder a result of induced consumer spending impacts.

This sizeable economic footprint also supported 2.5 million jobs in 2021. Of those, 1.1 million workers were employed directly in the production of food and non-alcoholic beverages, with the remaining 1.5 million in indirect and induced activities. Although fewer in number, food and beverage manufacturing workers punch above their weight. Their average GVA contribution per worker of USD 6,800 in 2021 is considerably higher than workers in other components of the agri-food sector. The total tax revenue collected from this component of the agri-food sector is estimated to be USD 2.6 billion.

[18] Please note that our estimates for the economic footprint of all sectors in Vietnam have changed from last year's report because of changes to official data. All historic data has been updated to use consistent and up-to-date estimates.

7.2.3 Food and beverage distribution

Similar to other Southeast Asian economies in our study, the food and beverage distribution sector is the smallest of the three components of Vietnam's agri-food footprint. This includes wholesale and retail activity as well as the sale of food and non-alcoholic beverages in the hospitality industry. The combined GDP footprint of all four activities amounted to USD 11.4 billion in 2021. Retail sales accounted for 49% of that total, with a USD 5.6 billion contribution to GDP. This was followed by food and beverages services with a 33% share, worth USD 3.8 billion, while the rest came from F&B wholesale and sales via accommodation providers.

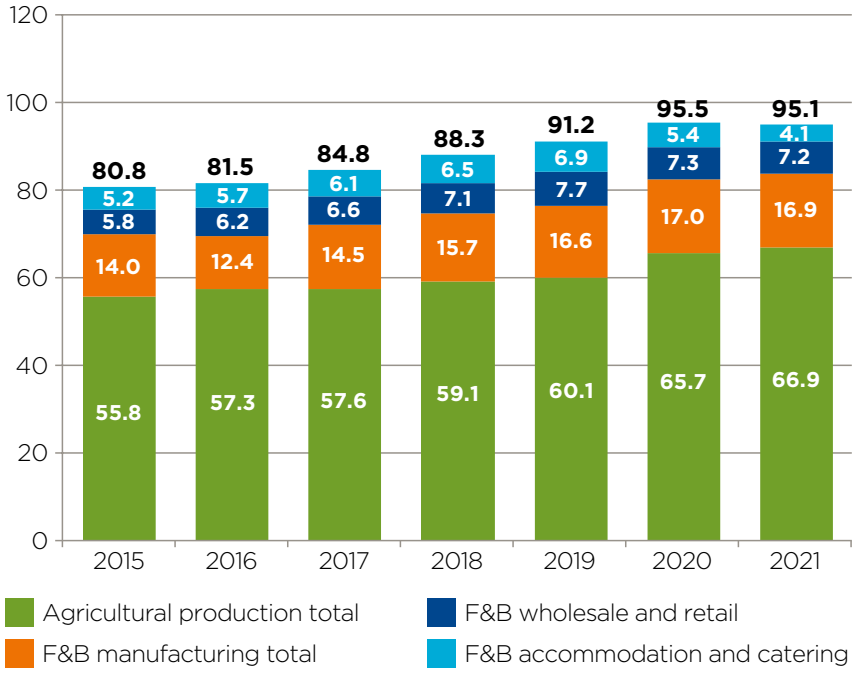
Employment across the F&B distribution sector breaks down along similar lines to GDP contributions. A total of 3.1 million jobs were supported by this component of the agri-food sector in 2021. Nearly half (48%) of employment in F&B distribution was in retail (1.5 million) while 39% of employment was in the catering sector (1.2 million). The remaining jobs were supported by activities in wholesale and accommodations. F&B distribution contributed a total of USD 1.6 billion in taxes, which is 13% of the total tax footprint of the agri-food sector.

7.3 THE EVOLUTION OF THE VIETNAM'S AGRI-FOOD SECTOR

Before the Covid-19 pandemic, Vietnam's agri-food sector was following a strong, positive growth trajectory, with average annual growth rates of 3%. After the pandemic occurred, the sector continued to fare well in 2020, largely supported by growth in the agricultural sector. However, in 2021, the sector's GDP footprint contracted by 0.4%, compared to the year before. Of the agri-food sector's three components, the food and beverage distribution industry was the hardest hit. However, the agricultural sector's GDP footprint has continued to grow, leaving the whole of the agri-food sector's footprint larger in 2021 than it was before the pandemic.

Fig. 29: Change in GDP contribution by Vietnam's agri-food sector, by component, 2015-2021

US$, billions (2021 prices)

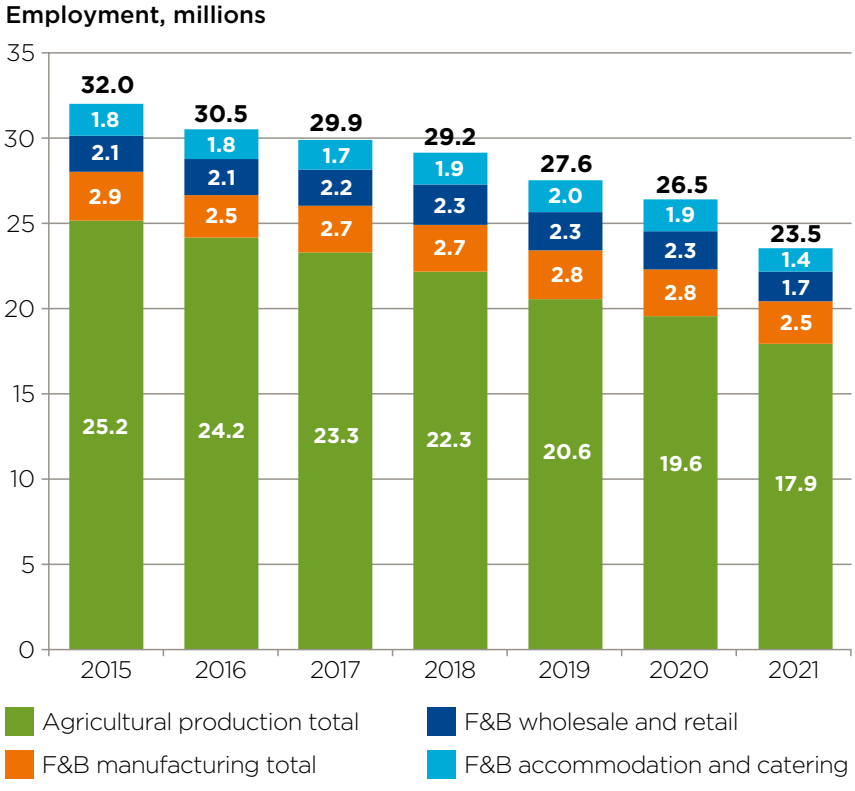


Source: Oxford Economics

Employment in the agri-food sector has been consistently declining over the years despite the increase in GDP contribution. The decline in employment is driven primarily by the large changes in employment within agricultural production, which also supports the greatest number of jobs within the agri-food sector. However, the decline has become more pronounced since the second year of the pandemic, mirroring the decline in GDP contribution. Overall, by 2021 the agri-food sector's footprint employed 8.5 million fewer people compared to 2015.

Labour productivity within Vietnam's agri-food sector has grown rapidly. It has expanded its contribution to GDP despite its employment footprint contracting significantly. Between 2015 and 2021, the sector's productivity rose 60% in real terms, an exceptionally rapid improvement, but one that still leaves Vietnam with significantly more catching-up to do with regards to its Southeast Asian competitors.

Fig. 30: Change in employment footprint by Vietnam's agri-food sector, by component, 2015-2021



Source: Oxford Economics

7.3.1 Agricultural production

The value of Vietnam's agricultural sector's contribution to GDP remained highly resilient in the face of the pandemic. The total economic footprint of agricultural activities and the associated supply chain and consumer spending was USD 66.9 billion in 2021, recording an 11% increase compared to levels in 2019. Looking at a longer time horizon, agricultural production was the only component of the agri-food sector to enjoy growth every year since 2015. Behind the improvements in agricultural production lay significant restructuring efforts, including changes to the use of croplands to generate higher economic value, and changes to agricultural inputs, such as the introduction of new rice varieties that provide higher yields.[19,20]

The employment footprint of agricultural production has been declining over the years. Compared to 2015, agricultural production sustained 7.3 million fewer jobs in 2021 than the year before, implying a 29% decline over the period and a 6% average annual decrease. The downward trend in employment in agricultural production is partly driven by declining participation rates by young workers, who are increasingly attracted to alternative employment opportunities in higher value sectors, and the low capacity of agriculture to create new employment.[21]

[19] FFTC Agricultural Policy Platform: Overview of Vietnam's Recent Agricultural and Rural Development Policy
[20] Vietnam News: New rice variety for flood and drought-prone areas
[21] Vietnam Union of Science and Technology Associations: Research report on rural labour and employment in Vietnam

Despite the decrease in workers in the subsector since 2015, the sectors' GDP contribution grew, illustrating how effectively labour productivity has grown. On average, the productivity of workers directly involved in agricultural production improved by USD 1,189 per worker between 2015 and 2021 in real terms, a 73% growth overall and an average of 10% growth annually.

7.3.2 Food and beverage manufacturing

The food and non-alcoholic beverages manufacturing component of the agri-food sector appeared largely unaffected by the first year of the pandemic, relative to the rest of Southeast Asia, but experienced a decline in 2021. Between 2015 and 2020, GDP contribution rose by USD 3.0 billion—a 21% expansion, achieved by an average annual growth rate of 4%. Whilst the industry contracted by 1% in 2021, its footprint was USD 2.8 billion larger in real terms in 2021 than in 2015. Vietnam's manufacturing sector has benefitted from multinational corporations switching their production bases away from China in response to rising costs and the US-China trade war.[22] In addition, it has continued to improve as an attractive destination for manufacturing, as evidenced by the rising number of free-trade agreements it has agreed in recent years.[23]

As of 2021, employment in the food and non-alcoholic manufacturing sector was below its pre-pandemic levels. In 2021, 0.4 million fewer jobs were supported than in 2019, equivalent to a 9% decline, with most of the decrease happening in 2021. This is consistent with a trend of rising productivity since 2015—a period in which the sector's GVA footprint has outpaced growth in its employment footprint. A recent study by the Vietnam Academy of Social Sciences, Ministry of Planning and Investment, and the United Nations Development Programme revealed that Vietnam has been successfully closing labour productivity gaps in food processing and manufacturing of beverages with comparator countries such as China, India, Indonesia, Malaysia, Philippines, South Korea, and Japan.[24]

7.3.3 Food and beverage distribution

The food and beverage distribution component of the agri-food sector was the hardest hit by the Covid-19 pandemic. This sector grew rapidly and consistently from 2015 to 2019, at an annual average rate of 7%. Its GDP footprint peaked in 2019 at USD 14.5 billion but fell sharply in 2020 and 2021, recording 12% and 11% year-on-year contractions, consecutively. Most of this decrease can be attributed to activities related to accommodation and catering, which were hit far more directly by the pandemic, via its negative impact on tourism and general social gathering.

This component of the agri-food sector also experienced sharp declines in employment during the pandemic, undoing years of steady growth. Prior to the pandemic, in 2019, 4.2 million jobs were sustained by food and beverage distribution activities—some 0.3 million more than in 2015. This total fell by 3% in 2020, and a further 26% in 2021, year-on-year, in a negative trend that was shared across all accommodation, catering, retail, and wholesale businesses.

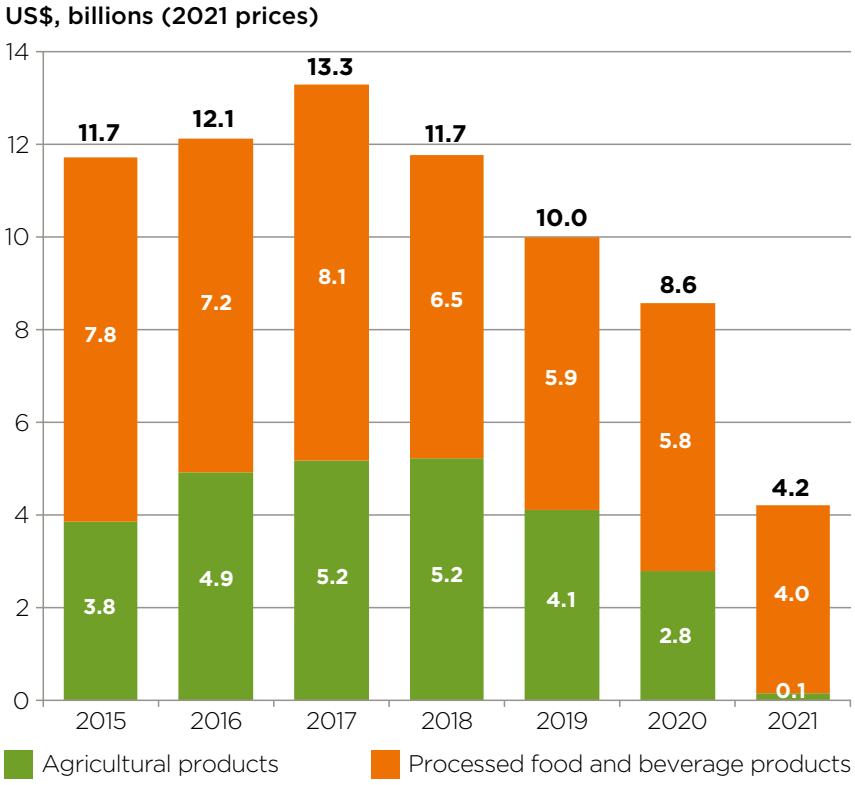
[22] Vietnam Briefing: Why manufacturing is driving Vietnam's growth
[23] Vietnam Briefing: Why manufacturing is driving Vietnam's growth
[24] VASS, MPI, UNDP: Productivity and competitiveness of Vietnam's enterprises Volume 1: Manufacturing

7.4 TRADE IN AGRI-FOOD PRODUCTS

Vietnam continued to enjoy trade surpluses in agri-food production in 2021, with a net export value of USD 4.2 billion. The trade surplus was mainly attributable to processed F&B products, which achieved a net surplus of USD 4.0 billion. In contrast, Vietnam's agricultural products only run a net surplus of USD 0.1 billion.

Vietnam's trade surplus in agri-food production is well established but on a declining trend. The 2021 trade surplus was some USD 7.5 billion lower than in 2015, equivalent to a 64% decrease. This is driven by an increase in the value of imports, which have risen in volume at the same time as prices have increased. Net exports of agricultural products experienced a greater decline as compared to processed F&B, with its trade surplus reduced to close to zero.

Fig. 31: Net exports of primary and processed food and non-alcoholic beverages, Vietnam, 2015-2021[25]



Source: Oxford Economics

[25] Due to COMTRADE data not being released at the time of writing, 2021 values are estimated based on available data for trade of broader agricultural and food products.

Ratov Maxim/Shutterstock.com

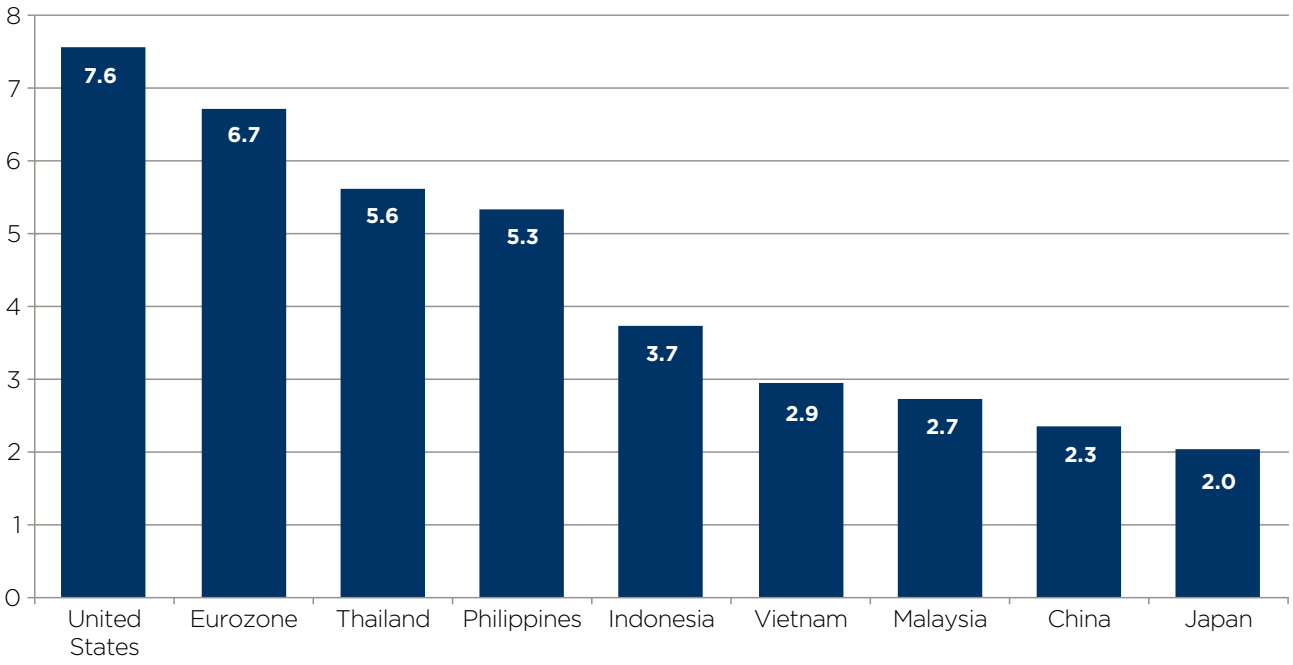
8. DEMAND OUTLOOK FOR THE AGRI-FOOD SECTOR

In this chapter, we compare the prospects for post-Covid-19 economic recovery around the region and examine the implications this has for the agri-food outlook. Oxford Economics forecasts the Southeast Asia region's economic recovery to continue through 2022 and into the coming years. The region's agri-food industry will benefit from a normalisation of activities, a reopening of borders, selected cases of impactful fiscal support, and better labour market conditions to support growing food expenditure over the next five years. Inflationary pressures have risen, but the region is less exposed to disruptions in Russian energy supply than Europe and has not witnessed the pace of consumer boom seen in the US. As such, inflationary pressures are increasing at a more moderate pace than in many other parts of the world economy.

The economic rebound from Covid-19 across Southeast Asia will support household spending power to the benefit of the wider agri-food system, and a recovery in tourism will fuel demand in the hospitality industry and its supply chains. Both factors feed into a positive demand-side outlook for the sector in the coming years. And as prosperity and living standards rise in Southeast Asia over the longer-term, we expect higher spending on food to drive growth in the agri-food sectors' economic footprint.

However, the sector will face significant macroeconomic threats to this recovery. In this chapter we unpack these opportunities and risks in more detail.

Fig. 32: Consumer price inflation, 2022



Source: Oxford Economics

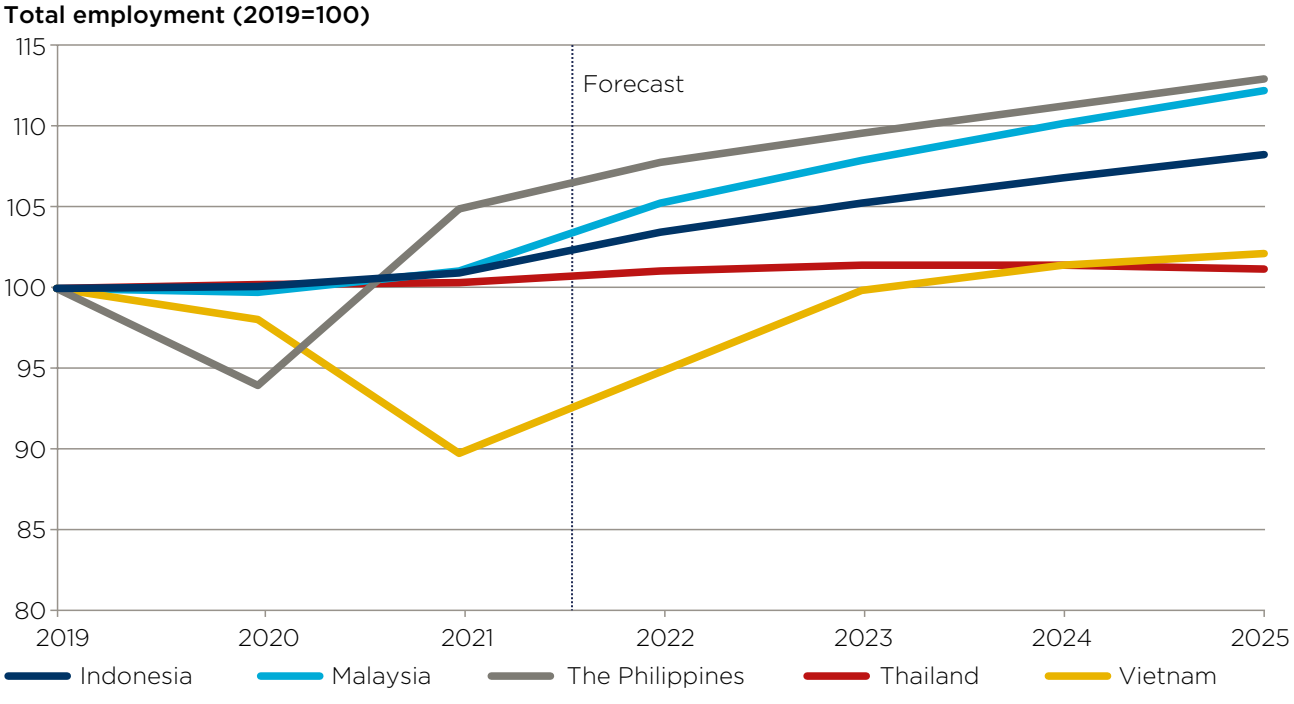
8.1 OUTLOOK FOR EMPLOYMENT AND TOURISM WILL UNDERPIN RECOVERY

8.1.1 Labour market recovery will provide a boost

Oxford Economics analysis suggests a relatively fast real wage growth for all countries except Thailand in our study in 2022, thanks to ongoing employment growth. In Thailand we anticipate wages will fail to keep pace with inflation in 2022, but rebound faster in 2023, delivering real income gains from this point onwards. As mobility gradually returns to pre-pandemic levels, the normalisation of economic activities, reopening of international borders, and policy support measures will boost employment, especially in the services sector.

Moreover, governments are taking measures to try to mitigate the impacts of price pressures on consumers, where resources permit. In Malaysia for example, the government has provided electricity and fuel subsidies, and kept administered prices low for key items. In Vietnam the government has implemented a temporary VAT cut, and in the Philippines tariffs for selected food imports have been reduced. In our assessment, faster inflation is likely to prove temporary and will become less of a drag on real incomes. Assuming energy prices normalise and supply chain pressures ease, we expect regional inflation to slow after 2022 and underpin real wage growth and food spending. Across the economies in our report, Oxford Economics anticipates spending on food and non-alcoholic beverages to grow from USD 475 billion in 2022 to around USD 562 billion in 2025, in 2021 price terms.

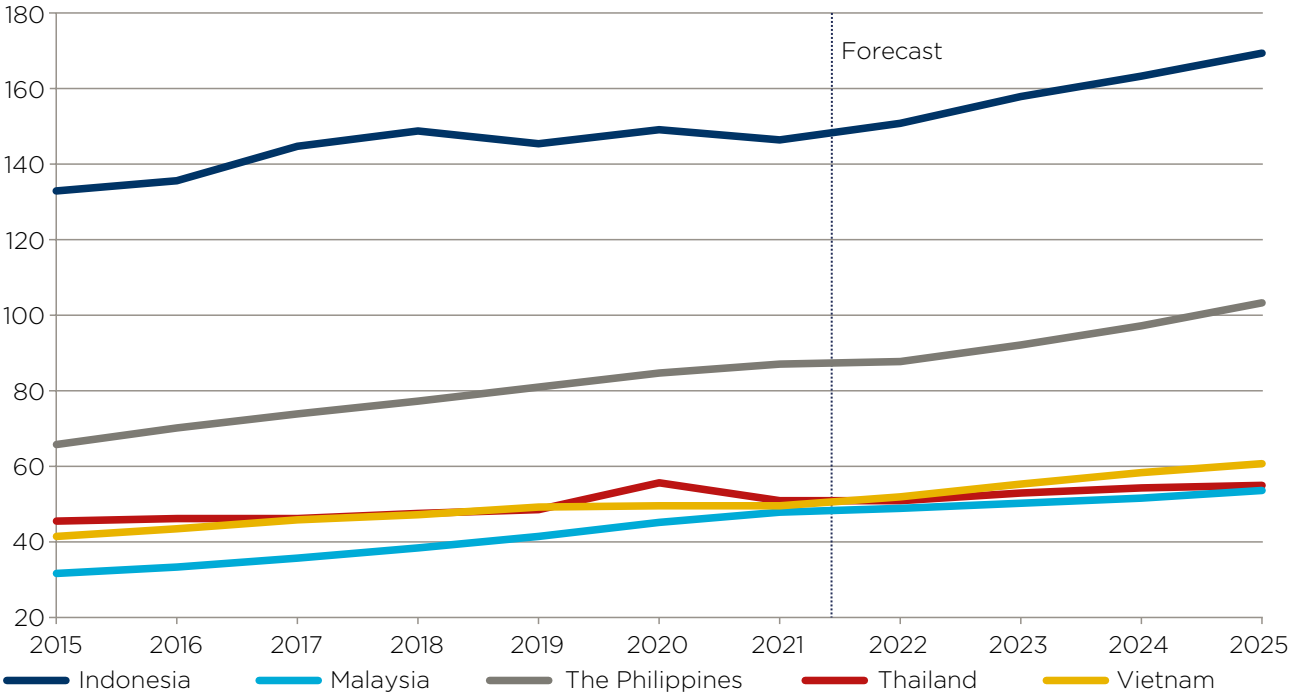
Fig. 33: Total employment by country in Southeast Asia, 2019-2025



Source: Oxford Economics

Fig. 34: Real spending on food and non-alcoholic beverages in Southeast Asia, 2015-2025

US$, billions (2015 prices)



Source: Oxford Economics

8.1.2 Tourism rebound supports the hospitality sector

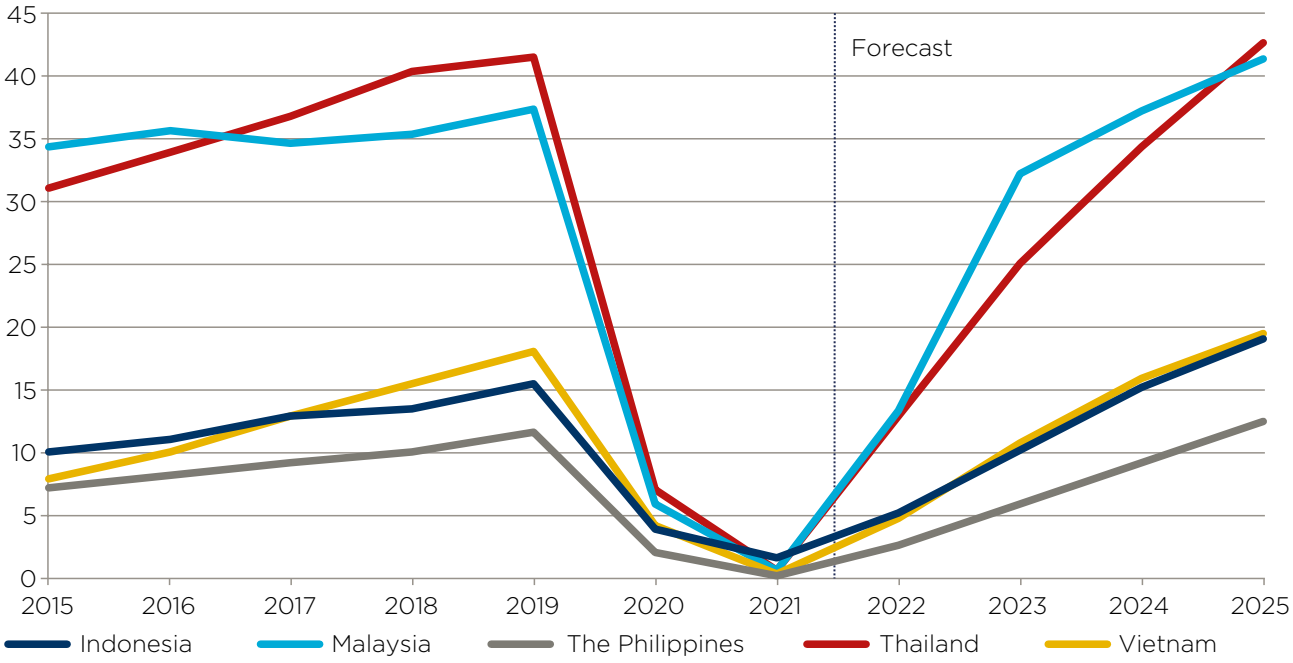
Given the importance of tourism to Southeast Asian economies—generating between 6% (Indonesia) and 22% (the Philippines) of GDP—the pace of the tourism revival will play a key role in the agri-food sector outlook, through spending in hospitality venues. We forecast the number of tourist visitors to the region to rise to 38.7 million in 2022, although this rebound remains well below the 123.8 million arrivals pre-Covid-19, partly due to the continued absence of Chinese outbound travellers. In 2019, Asia Pacific destinations were host to 81% of Chinese outbound visits, with the bulk going to Northeast and Southeast Asia. Among the countries in our study, the Vietnamese and Thai markets are the most reliant on Chinese tourists, who accounted for 32% and 28% of total inbound visitors respectively in 2019.

The Chinese government remains resolute in enforcing its strict "zero-Covid" policy, therefore restricting international arrivals, including returning residents, which therefore limit departures. Given the size of the Chinese outbound market, it would be difficult if not impossible for destinations to fill this gap with visitors from other major source markets. Hence, we expect the tourist numbers in the region not to return to pre-Covid-19 levels by 2025.

Nevertheless, a recovery in tourism and higher domestic demand will boost spending on hospitality services from 2022 onwards, supporting the broader recovery in domestic demand for the agri-food sector. The rebound in spending on meals out will take a little longer in more tourism-reliant economies, for example the Philippines and Thailand, than in relatively less tourism reliant economies such as Indonesia and Malaysia.

Fig. 35: Number of inbound tourists, 2015-2025

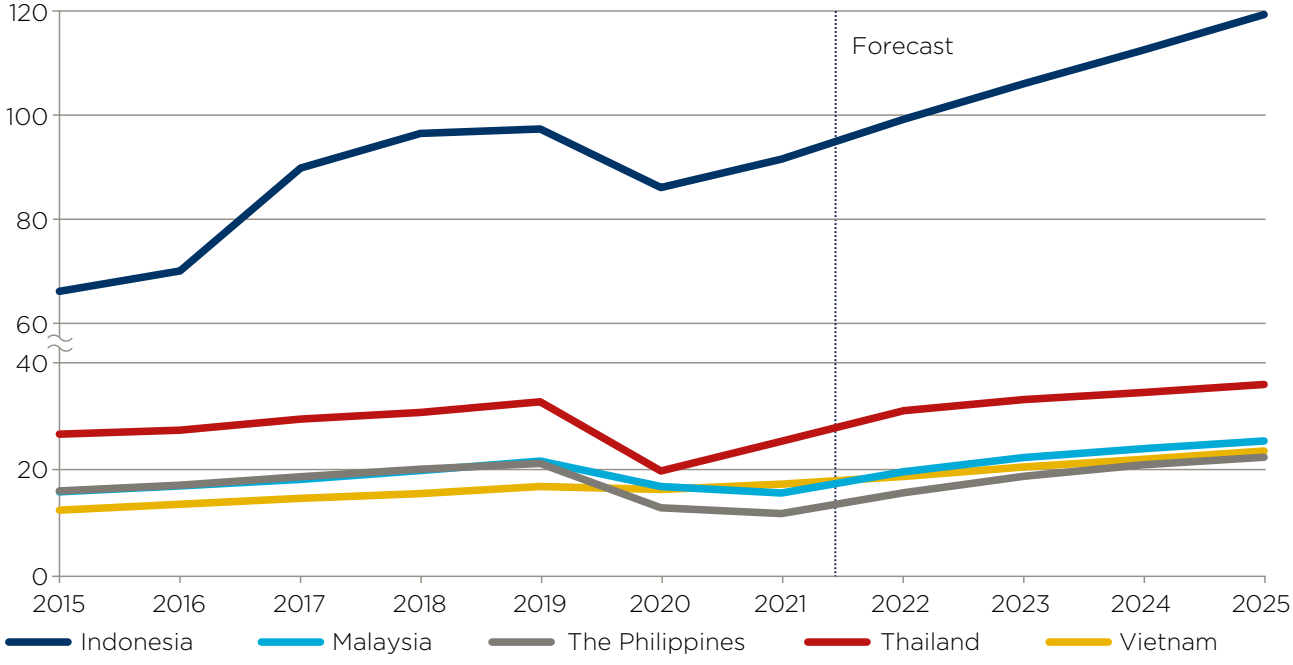
Millions



Source: Oxford Economics

Fig. 36: Real spending on eating out, 2015-2025

US$, billions (2015 prices)



Source: Oxford Economics

8.2 FOUR NEGATIVE FACTORS THAT MAY CONSTRAIN THE PACE OF RECOVERY

Despite the various reasons for optimism, the agri-food sectors in the five Southeast Asian countries will have to adapt to four key negative macroeconomic conditions, which could present major challenges.

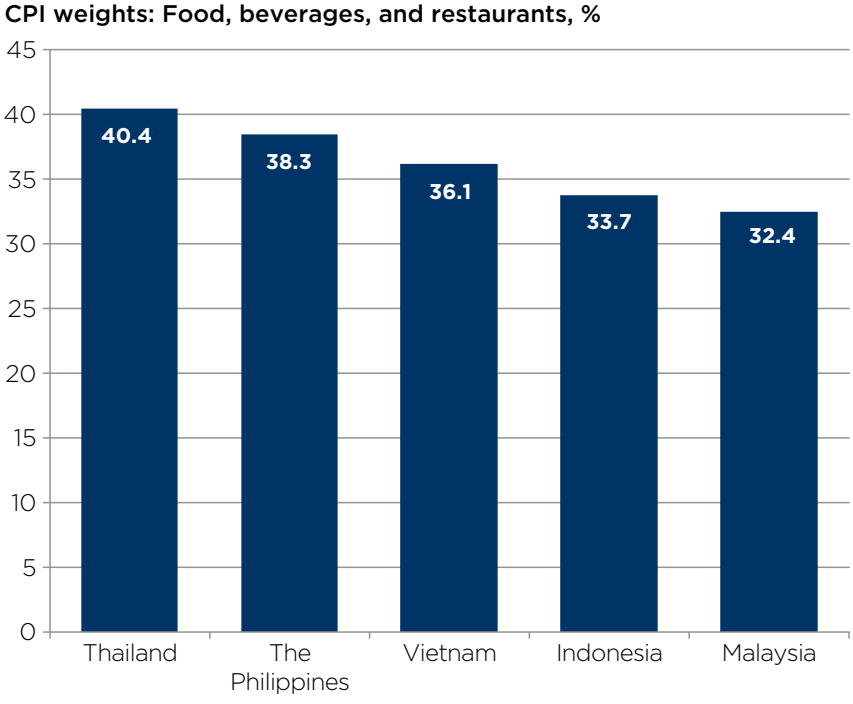
8.2.1 Rising inflation will dampen spending

Through the first half of 2022 the Russia and Ukraine war drove commodity prices sharply higher across a range of commodity types. As of May 2022, both maize and corn prices were around a third higher than at the start of the year, whilst wheat prices were up around 46%—three markets for which both Russia and Ukraine are key global suppliers. Meanwhile oil and gas prices, which are also important cost drivers for food producers given the importance of energy in food manufacturing,[26] have both more than doubled in price so far in 2022.

As spending on food, beverages, and restaurants accounts for a relatively large portion of household budgets in Southeast Asian countries, average households are highly impacted by this shift in global commodity prices. This is especially true for Thailand, the Philippines, and Vietnam, where food and beverages account for 35% or more of household spending (using their respective shares in the consumer price index as a benchmark).

Other inflationary pressures have also worsened through the course of the first half of 2022, impinging on demand for agri-food outputs. Supply chain interruptions from China's continued lockdowns have raised the cost of manufactured inputs, whilst the rebounding hospitality activity (as households "catch up" with social activities) is also pressuring the cost of providing services. Across all the countries in our report the rate of price growth will be faster in 2022 than in the past couple of years, with the acceleration especially sharp in the Philippines, Indonesia, and Thailand (see Fig 38). Faster inflation, in turn, will squeeze real incomes and will weigh on food spending through the course of the year.

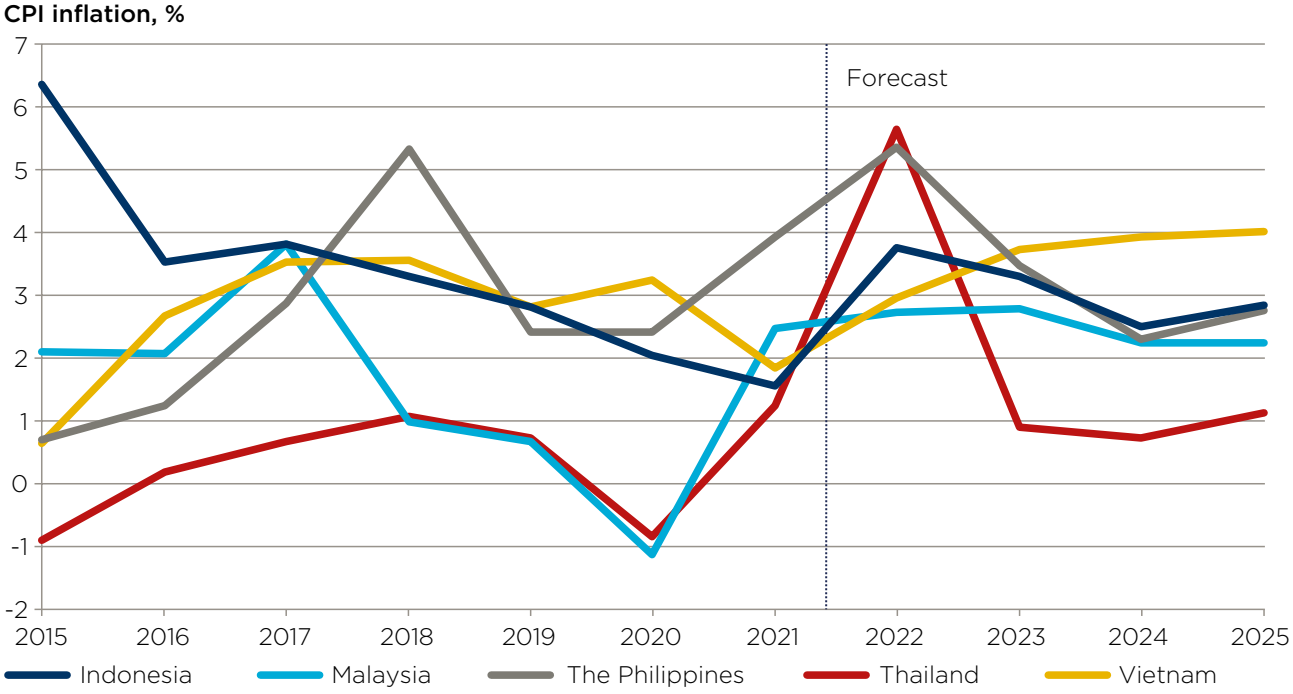
Fig. 37: Food and restaurant spending accounts for a third or more of household spending in Southeast Asia



Source: Oxford Economics

[26] For more on the pass-through of energy prices to food manufacturing costs, see "The Outlook for Food Price in Asia", Oxford Economics, 2022

Fig. 38: Consumer price inflation in Southeast Asia, 2015-2025



Source: Oxford Economics

8.2.2 Demographic changes add costs for firms

The decline in the working age population in some Southeast Asian countries will mean labour becomes scarcer, necessitating new and faster solutions to grow productivity. For example, Thailand's already-shrinking working-age population will mean enterprises along the agri-food value chain may need to raise worker compensation and accelerate investment and automation to keep pace with demand and remain internationally competitive. In Malaysia the working age population will continue to grow, but with almost 80% already living in urban areas—set to rise to 90% by 2040—the availability of labour for agricultural enterprises will become increasingly pressured. The trend is not universal across the region; by contrast the workforces of Indonesia and the Philippines are set to continue expanding for decades to come, and in both more than 40% of the population still live in rural areas.

8.2.3 Persistent trade deficits threaten currency instability

Oxford Economics' baseline forecast is for ASEAN currencies to strengthen gradually over the coming years, along with expectations of rising productivity and more stable inflation. But the region has historically been more prone to exchange rate volatility than other parts of Asia, especially during periods of heightened global financial and economic uncertainty. Exchange rate volatility can transmit to increased food prices through the cost of imported agricultural and energy commodities. Countries with persistent trade deficits, such as Indonesia and the Philippines, are more at risk during such periods than countries with persistent surpluses, such as Thailand and Vietnam.

8.2.4 Impact of post-Covid-19 fiscal measures

Governments in Southeast Asia are under pressure to tackle the fiscal deficits that have widened during the coronavirus pandemic. As we discussed in the 2021 publication with FIA, "*Fiscal Risks in the food sector in Asia after Covid-19*" some governments in the region need to start balancing their books in the aftermath of Covid-19. In the Philippines and Thailand, government debt burdens have risen by 20 percentage points (pp) of GDP since 2019, compared to 15pp in Malaysia, and much more modest increases in Indonesia and Vietnam. Supply conditions for the agri-food sector in these economies may be more at risk from new policy measures, such as value added taxes on food and beverage consumption or reductions in public spending, than in countries with stronger fiscal positions.

8.3 CONCLUSION

As borders begin to reopen and countries remove social distancing restrictions, the agri-food sector still faces significant headwinds that threaten its recovery. Inflationary pressures from home and overseas will act as a drag on consumer spending. In the longer term, many parts of the sector require high levels of investment and innovation to raise productivity—particularly in the face of global warming. Therefore, whilst the macroeconomic drivers for demand in the agri-food sector look robust across the region, the conditions and emerging risks on the supply-side of the industry could continue to create challenges in the years to come.

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APPENDIX 1: DEFINING THE SECTOR

DEFINING THE AGRI-FOOD SECTOR

Component 1: Agricultural production

For the purposes of this study, we define the agricultural production component of the agri-food sector as the elements that produce goods that are either exclusively or primarily used for food. As such, our analysis excludes rubber and tobacco products. In addition, while official statistics often report the combined agriculture, forestry, and fisheries industry, we do not include any component of the forestry industry.

International trade in agri-food products is segmented based on whether it is considered to have undergone processing or not, based on our analysis of detailed COMTRADE data. In this definition, processing refers to activities ranging from initial processing, such as butchery and filleting of meat products or milling of cereal products, to the production of final processed food and beverage products.

Agricultural production typically depends on a relatively simple supply chain, including products such as vehicle fuels and fertilisers, basic utilities including electricity and fresh water, and services from the finance and insurance industries. We estimate how much is spent in the supply chain, and on what, to map out the agriculture sector's indirect impact on the economy.

Component 2: Food and beverage manufacturing

In this study, we focus our analysis on non-alcoholic food and beverage manufacturing taking place within our four countries of analysis. This is generally well-identified within national accounts statistics, although in some cases has required careful estimation to ensure that alcoholic beverages and tobacco were removed from our calculations.

We model the supply chain spending of F&B manufacturing using bespoke input-output (IO) tables for our four economies. IO tables are statistical representations of the spending flows in an economy, used by national statistics agencies to understand the interdependence of different industries. Our IO tables allow us to refine our estimates to avoid double counting the agriculture component, described above, by focusing only on the non-food and -drink supply chain.

Component 3: Food and beverage distribution

We drew upon a range of data sources to produce this analysis, including national accounts data on the value of different sectors, as well as trade and services surveys that detail the activities of service providers. Within countries where data were more limited, we developed modelling assumptions about the structure of the industry, based on international benchmarks. For the hospitality sector, not all economic activity can be considered attributable to the agri-food sector. To estimate the share to include in our analysis, we combined an assessment of detailed IO tables to assess the financial structure of their activities with industry expertise.

APPENDIX 2: METHODOLOGY

The structure of the analysis produced for this project mirrors that of our previous report, The Economic Impact of the Food Industry in Southeast Asia, released in 2021. This includes using the same methodology, with key difference being the addition of Malaysia into our analysis.

Our analysis relies on data and statistics from several sources, however we primarily utilise the official statistical agencies of the five countries. These agencies are: Statistics Indonesia (https://www.bps.go.id/), the Department of Statistics Malaysia (https://www.dosm.gov.my/v1/) the National Statistics Office of Thailand (http://www.nso.go.th/sites/2014en), the Philippine Statistics Agency (http://www.psa.gov.ph/) and the General Statistics Office of Vietnam (https://www.gso.gov.vn/).

APPROACH TO ESTIMATING THE DIRECT CONTRIBUTION OF AGRICULTURAL PRODUCTION AND F&B MANUFACTURING

The largest components of the agri-food sector in Southeast Asian countries are agricultural production and F&B manufacturing. We begin by estimating their direct contributions.

We estimate the direct GDP contribution of the in-scope elements of agriculture and fisheries based on national accounts data, from national statistics agencies. For all countries we collected data for the whole of the agriculture, forestry, and fisheries industry, however some were disaggregated further. We then had to remove the share of this that lays outside of the scope of this study (e.g. forestry, tobacco farming, and rubber farming). Different approaches were applied for different countries, including using highly detailed product-level data from within the national accounts (available for Thailand, Malaysia and Indonesia, with Thai data used to estimate the splits in Vietnam) and information from detailed input-output tables (the Philippines).

For food and non-alcoholic beverage manufacturing, national accounts data from the relevant statistics agencies were used again. In this case, the aggregation available included alcoholic beverage manufacturing, and sometimes tobacco manufacturing. These were removed by only including the shares of the broader sectors that were in-scope. Indonesia, Malaysia and the Philippines utilised detail available in input output tables from their national statistics offices, the National Statistics office of Thailand had detailed manufacturing survey data, which allowed for disaggregation, with this split also used to estimate the in-scope value for Vietnam.

For both sectors, the values for gross output were estimated based on the ratios between gross value added and gross output, based on OECD data.

Employment in agricultural production was calculated using national statistics agency data for total agricultural forestry and fisheries employment. This was scaled to the size of the sector. For F&B manufacturing, our analysis estimated the productivity of workers (the GVA contribution per worker) in the sector relative to the whole of manufacturing, for which we had complete data. For Thailand this utilised detailed manufacturing data, whereas the other countries looked at the relative productivities revealed by data from the United Nationals Industrial Development Organisation (UNIDO) INDSTAT database.

In some cases, productivities had to be adjusted for productivity changes as up-to-date data had not been released. This was achieved using the overall economy-wide productivity changes implies by GDP and employment values from national statistics data.

APPROACH TO ESTIMATING THE INDIRECT AND CONSUMER SPENDING IMPACTS

Our approach to analysing the indirect and induced impacts utilises input-output tables, which are designed to give a snapshot of an economy at a particular time, showing the major spending flows. These include "final demand" (consumer spending, government spending, and exports to the rest of the world); intermediate spending (what each sector buys from every other sector—the supply chain); how much of that spending stays within the economy; and the distribution of income between employment income and other income (mainly profits). Input-output tables are therefore particularly useful when estimating indirect and induced economic impacts.

The idea behind the input-output table is that the economy can be divided into a number of producing industries, and that the output of each industry is either used as an input into another industry, or in final consumption. In essence an input-output model is a table that shows who buys what from whom in the economy.

A more complex approach than this is to map the transactions between different countries, therefore mapping who buys what from whom including every industry in every available country. The Oxford Economics Global Economic Impact Model (GEIM) utilises the OECD inter-country input output table (ICIO) to model the supply chains that sustain activity in the indirect and induced impacts.

The inputs to this model are the supply chain purchases of the relevant sectors (agricultural production and R&B manufacturing) and the pattern of consumption from their employees. These are estimated based on OECD data which provide the value of procurement and employee earnings. The structure of the ICIO was then used to estimate the structure of spending that supported all of this activity. The GEIM also accounts for the additional induced contribution made from the supply chain contributions.

The impacts generated were restricted to their own countries, without international trade. This ensured that we were only accounting for economic activity stemming from the agri-food sector in the country in question and also that we maintained comparability with the previous analysis for Singapore.

ESTIMATING THE ECONOMIC IMPACT OF F&B DISTRIBUTION

An important aspect of our study is to estimate the economic impact of the distribution of food and non-alcoholic beverages in these economies. Our analysis focused on four distribution channels: wholesale, retail, catering, and accommodation providers (primarily hotels).

The agri-food distribution sector's contribution was analysed by estimating the share of the whole of wholesale and retail sector's footprint that could be attributed to agri-food. Statistics were available for the distribution sector's overall contribution to GDP from all statistics agencies.

For wholesale, we accessed detailed official statistics from trade and services business surveys for Thailand, Malaysia and the Philippines, allowing the relevant share of wholesale to be estimated. Such granular information was not available for the other counties, so estimates were produced based on Thai data. As these surveys do not specifically identify food retail outside of specialist stores, the share of the sales of non-specialised stores (which make up the majority of sales) was estimated using consumer spending data. This sales figure was converted into a contribution to GDP based on a combination of the business

Fig. 38. Shares of different components of the hospitality industry's economic impact attributed to agri-food

	Catering	Accommodation
Thailand	75%	20%
Malaysia	90%	30%
Indonesia	90%	30%
The Philippines	75%	20%
Vietnam	75%	20%

surveys and national accounts figures for the whole of the retail sector. Together these approaches allowed us to estimate the share of the total economic impact though could be applied to these sectors.

Official data were used to get total wholesale and retail employment. More granular trade and services survey data were used to estimate the productivity of the agri-food components of these industries, which allowed their employment footprint to be calculated. Gross output of these components was calculated in the process of calculating the GDP contributions.

The hospitality industry (accommodation and catering) is well-reported in national statistics data, with all countries other than Vietnam having the two components independently identified in their national accounts data. For Vietnam, a division between the two was estimated based on consumer spending data.

Official statistics were used to get employment and gross output estimates, with some information on consumer spending on hotels and catering establishments used to scale the gross output figures.

Only a limited portion of the hospitality industry was considered part of the agri-food sector. Using analysis of input-output tables, as well as consultation with FIA and their members, the following proportions were chosen.

TAX MODEL

The final component of our analysis involved estimating the tax that is generated by these activities. Our model focussed on income tax, taxes on corporate profits, and sales taxes (for the distribution sector only). These are modelled based on effective tax rates, which are the amount of tax generated relative to a suitable denominator. In the case of income tax, this it is tax revenues per dollar of the compensation of employees. For corporation tax it is revenues relative to the gross operating surplus. For sales taxes it is taxes relative to private consumption expenditure. These effective tax rates were applied to the relevant statistics for each component of the agri-food sector, calculated using OECD data.

Checks were made to ensure that overall implied tax rates were sensible, by comparing the ratio between tax and GDP contribution to national totals.

ABOUT OXFORD ECONOMICS

Oxford Economics was founded in 1981 as a commercial venture with Oxford University's business college to provide economic forecasting and modelling to UK companies and financial institutions expanding abroad. Since then, we have become one of the world's foremost independent global advisory firms, providing reports, forecasts and analytical tools on more than 200 countries, 250 industrial sectors, and 7,000 cities and regions. Our best-in-class global economic and industry models and analytical tools give us an unparalleled ability to forecast external market trends and assess their economic, social and business impact.

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Food Industry Asia (FIA) was formed in 2010 to enable major food and beverage manufacturers and ingredients suppliers to speak with one voice on complex issues such as health and nutrition, food safety, sustainability, and regulations and trade. From its base in Singapore, FIA seeks to enhance the industry's role as a trusted partner and collaborator in the development of science-based policy across Asia. To do so means acting as a knowledge hub for Asia's national industry associations and affiliated groups, to support with their engagement of public bodies and other stakeholders across the region.

August 2022

The modelling and results presented here are based on information provided by third parties, upon which Oxford Economics has relied in producing its report and forecasts in good faith. Any subsequent revision or update of those data will affect the assessments and projections shown.

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